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A.M.A. SESSION — St. Louis — MAY 15-19, 1939

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THE PROBLEM OF THE THYMUS IN CHILDREN

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AND
JOSEF WARKANY, M.D.
CINCINNATI

The thymus gland has for a long time been a subject for study by physiologists.[1] It appears to many clinicians, however, that this organ is cited only when convenient to account for an otherwise inexplicable symptom, or even death. Thus the critical physician frequently wishes there were no such thing as the thymus and denies that it has any clinical implications. The thymus exists, however, and it cannot be entirely disregarded as a potential source of disturbance in early life, even though it has been too often incriminated by uncritical diagnosticians and too frequently treated by enthusiastic therapeutists. There will be considered in this presentation three ways in which the pediatrician meets the problem of the thymus, the type of encounter varying at the different stages of the child's development.

THYMIC HYPERPLASIA

The pediatrician may be called to see a young infant suffering from such symptoms as respiratory stridor, dyspnea, cyanosis and dysphagia. Before he considers the differential diagnosis and treatment of these symptoms, two essential questions should, if possible, be answered. First, "Can thymic hyperplasia cause symptoms of compression?" The answer appears to be "Yes." Second, "Is thymic hyperplasia a frequent cause of the syndrome?" The answer is "No"—or, to paraphrase in the idiom of Chevalier Jackson,[2] "All is not thymus that chokes." In other words, the truth is probably to be found between the two extremes of "thymic negation" and "thymic obsession."[3] That some greatly respected clinicians have stated that they never encountered a stridor which could not be explained by other causes than thymic hyperplasia or that the diagnosis of enlarged thymus cannot be made during life does not prove that such an occurrence is impossible. It is a demonstrable fact at necropsy that the thymus can cause compression of the trachea, blood vessels and perhaps the recurrent laryngeal and other nerves,[4] and tracheal compression has been demonstrated during life by tracheoscopic examination.[5]

The symptoms of stridor, dyspnea, cyanosis and dysphagia are, of course, not characteristic of thymic hyperplasia. They can be observed also in other conditions and the differential diagnosis is by no means easy.

Thymic stridor should be noticeable in inspiration as well as expiration. It should be continuous, diminishing only moderately during rest and sleep. These qualities may be of help in distinguishing it from other forms of noisy respiration. A purely inspiratory stridor may be caused by a number of more or less common conditions, such as a congenital laryngeal stridor due to softness and smallness of the infantile larynx, and may be intermittent and disappear during sleep. A loud and snoring inspiration is heard in a variety of conditions, such as retropharyngeal abscess, cysts at the base of the tongue, glossoptosis and congenital macroglossia or the macroglossia of hypothyroidism. Stridor may be due also to congenital deformities or benign tumors of the larynx. In older children adenoids frequently cause noisy respiration, and deep-seated goiter is a possibility to be considered in differential diagnosis. In stenosis of the bronchioli an expiratory stridor is to be expected.

Cyanosis in thymic hyperplasia may be due to the imperfect aeration caused by tracheal stenosis or to compression of the large vessels which are situated near or, in the newborn period, even in the thymic tissue. It is hardly necessary to point out that cyanosis of the newborn may be due to a number of other causes, such as congenital heart disease, cerebral abnormalities or injuries and atelectasis, which are all much more frequent than thymic pressure.

Inspiratory retractions are not typical of thymic hyperplasia. They are found also in all other forms of obstruction of the upper and lower air passages.

Dysphagia could be caused by pressure of an enlarged thymus on the esophagus, but this type is not to be confounded with the difficulty in swallowing due to esophageal malformation or to that seen in persons with hypothyroidism or in idiotic infants.

To confirm the diagnosis of enlarged thymus, some clinicians—who, we freely acknowledge, must be more skilful than most of us—claim to be able by percussion to outline this organ. It is said to be sometimes possible to palpate the enlarged thymus in the suprasternal notch during expiration—a pleasure which has been denied to most practitioners. Lymphocytosis is of doubtful if any value in the diagnosis. It must be admitted, then, that none of the differential points men-

From the Department of Pediatrics, University of Cincinnati College of Medicine and the Children's Hospital Research Foundation.

Read before the joint meeting of the Section on Pediatrics and the Section on Radiology at the Eighty-Ninth Annual Session of the American Medical Association, San Francisco, June 16, 1938.

1. Mitchell, A. G., and Rittershofer, C. R.: The Thymus Gland, in Brennemann, Joseph: Practice of Pediatrics, Hagerstown, Md., W. F. Prior Company, 1937, vol. 3, chapter 22.
2. Jackson, Chevalier: Wheezing Respiration in Children: Bronchoscopic Observations on Stridorous and Asthmatoid Breathing, Am. J. Dis. Child. **41**: 153 157 (Jan.) 1931.
3. Morse, J. L.: Thymus Obsession, Boston M. & S. J. **197**: 1547-1552 (Feb. 16) 1928.
4. Feer, Emil: Diagnosis of Children's Diseases, Philadelphia, J. B. Lippincott Company, 1928, p. 261. Noback, G. J.: Contribution to Topographic Anatomy of the Thymus Gland, Am. J. Dis. Child. **22**: 120 (Aug.) 1921.
5. Jackson, Chevalier: Thymic Tracheostenosis, Tracheoscopy, Thymectomy, Cure, J. A. M. A. **48**: 1753-1756 (May 25) 1907.

tioned are typical of thymic hyperplasia. Elsewhere Brown and one of us [6] have particularly emphasized the fact that an infant or child who has some cause for dyspnea, cough and cyanosis (as infection of the respiratory tract, congenital heart disease or the like) and who also has an enlarged thymus is more liable to these compression symptoms. Probably an enlarged thymus may aid in their production, even when in itself it would be insufficient to cause symptoms.

Roentgenograms can be helpful in the diagnosis of thymic hyperplasia. The fact that misinterpretation of these occurs all too frequently does not in itself discredit their use. Like other diagnostic tools, roentgenograms are of value only in the hands of experts who know how to use and interpret them. The discussion of this phase of the subject is better left to others in this symposium.[7]

It follows logically from what has been stated that such symptoms as stridor, dyspnea, cyanosis and dysphagia in newborn or young infants may occasionally be caused by thymic hyperplasia. The treatment at the present time is roentgen irradiation, as first suggested by Friedlander.[8] Before the diagnosis is made and such treatment instituted a number of more frequent conditions must be ruled out.

Time does not permit more than the dogmatic statement that radiologic treatment is not indicated simply because the thymus appears on the roentgenogram to be enlarged. Certainly too there is nothing to support the practice of routine radiologic treatment of the thymus in every newborn infant. Furthermore, it may be stated categorically that no harm should result from one to three radiologic treatments properly given.

STATUS THYMICOLYMPHATICUS

Status thymicolymphaticus has nothing to do with thymic stridor. The title of Paltauf's [9] original paper on this subject was "On the Relation of the Thymus Gland to Sudden Death." It dealt with children and adults who had died suddenly, without preceding stridor or any other symptoms of disease. In some of these patients Paltauf saw at necropsy the following uncharacteristic symptoms: pallor, well developed deposits of subcutaneous fat, an enlarged spleen, signs of rickets and enlargement of the lymph nodes and of the thymus. There were transitional forms described by him in which rickets was not present, but otherwise the picture was similar to that in the first group. The somatic makeup of these children was termed "lymphatic constitution" and Paltauf expressed the belief that this, rather than any abnormality of the thymus itself, was the cause of death. That is to say, enlargement of the thymus was not of primary importance in this conception. Granting that there is such a condition as the lymphatic diathesis, any enlargement of the thymus would be only an indication of the abnormal constitution, and no improvement could be expected by treatment of this organ. To reduce the size of the thymus by radiologic treatment or to remove it would not be of any more value than to irradiate the spleen or some of the lymph nodes or to remove them. The situation would be similar to treating hypothyroidism by clipping the patient's dry and coarse hair, which would remove a symptom but which could hardly be considered causal treatment.

Discussion concerning status lymphaticus could be limited to these few statements. However, since the conception of "lymphatic constitution" will celebrate its fiftieth birthday next year, it might be of interest to review briefly the present attitude toward that diagnosis and its role as a cause of sudden death. Sudden death still occurs in children in whom necropsy shows enlargement of the thymus gland and spleen and numerous large lymph nodes and follicles. What should be the attitude concerning the cause of death in such cases? The studies of Hammar,[10] Boyd,[11] Greenwood and Woods [12] and Young and Turnbull [13] have helped greatly to clarify the conception of status thymicolymphaticus. These have made it evident that the involuted thymus of the chronically sick and undernourished child had been incorrectly considered normal, whereas the prominent thymic and lymphatic tissue of the healthy, well developed infant had also incorrectly been considered abnormal. In the majority of instances of sudden death in infants, well developed thymus glands and lymphoid tissues were declared abnormal because they were compared with the same tissues in children who had died after a wasting disease. In many instances of sudden death due to obvious causes such as fracture of the skull, supposedly large but obviously normal thymus glands are found. Even the mere fact that a thymus gland may weigh 20 or 30 or more grams above the average for a given age only demonstrates the wide limits of normal and is no proof that the condition of this organ was in any way related to death.

It is obvious that if status thymicolymphaticus exists not only does it comprise a great number of pathologic syndromes but it is present in many apparently healthy children.

THE THYMUS GLAND AS AN ENDOCRINE ORGAN

It is, of course, not possible to do justice to the problem of the thymus as an endocrine organ in a few moments. Here again are encountered the same reactions of negation and of obsession which have previously been mentioned. Thus the thymus gland was at one time supposed to have so many different incretory functions that various investigators who could not verify these assumptions experimentally came to the conclusion that it was not an endocrine gland at all. Yet some experimentally proved facts show a distinct participation of the thymus in glandular interplay—facts which cannot be overlooked by the clinician. For example, gonadectomy as well as adrenalectomy leads to delayed involution or even to hyperplasia of the thymus. This does not necessarily mean that the thymus is an endocrine organ, since many types of tissue, glandular or otherwise, can be affected by such an interference with the normal function of the organism. Removal of the thymus and administration of thymus extracts have led to contradictory results. The experiments of

6. Mitchell, A. G., and Brown, Estelle W.: Clinical Implications of Thymus and Status Thymico-Lymphaticus, Ann. Int. Med. **8**: 669-677 (Dec.) 1934.

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11. Boyd, Edith: Growth of the Thymus: Its Relation to Status Thymicolymphaticus and Thymic Symptoms, Am. J. Dis. Child. **33**: 867-879 (June) 1927; Weight of the Thymus Gland in Health and Disease, ibid. **43**: 1162-1214 (May) 1932.

12. Greenwood, M., and Woods, H. M.: "Status Thymicolymphaticus" Considered in Light of Recent Work on the Thymus, J. Hyg. **26**: 305-326 (Aug.) 1927.

13. Young, M., and Turnbull, H. M.: Analysis of the Data Collected by the Status Lymphaticus Investigation Committee, J. Path. & Bact. **34**: 213-258 (March) 1931.

Rowntree and Einhorn[14] will be referred to in this symposium. Briefly, these have shown that in the offspring of thymectomized rats a definite retardation of growth occurs, as reflected in body weight and in body length. Furthermore, after continuous intraperitoneal injections into rats of a thymus extract prepared by Hanson, successive generations of their offspring showed acceleration of growth and development.

When the application of these experimental studies to clinical problems is attempted, it must be recognized that we are only at the beginning of an understanding of pathologic syndromes. Suppose, for example, the clinician sees a patient who is sexually hypoplastic and who has an enlargement of the thymus. The question immediately arises whether the thymus, the gonads or the adrenal glands are primarily at fault. Some of the experiments cited previously indicate that enlargement of the thymus is secondary. Obviously, therefore, such patients would not be benefited by radiologic treatment or removal of the thymus gland or by the administration of thymic products, since these procedures would not influence the primary defect. There may be found too an apparently hyperplastic thymus in patients with pluriglandular syndromes involving the gonads, the thyroid and the adrenal and pituitary glands. According to the case and the preference of the author, any one of these glands may be placed in the center of the disease picture, the thymus usually being credited with only a secondary role. Instances[15] have been known, however, in which primary cancer of the thymus has apparently led to a pluriglandular syndrome and in which it might be justifiable to assume a primary role for the thymus in the symptoms caused by the endocrine imbalance. The observations of Rowntree and his co-workers could also be brought into discussion here in relation to glandular disturbances which appear in successive generations. It is to be stated that present knowledge of the possible endocrine functions of the thymus offers nothing of practical help in treatment.

SUMMARY

Anatomic and clinical observations support the view that an enlarged thymus gland may occasionally cause such symptoms of compression as stridor, dyspnea, cyanosis and dysphagia. These occur in many other abnormal conditions, which are more frequently operative in their causation than is disorder of the thymus. Radiologic treatment, carefully given in proper dosage, is a justifiable procedure when the thymus gland is suspected as the cause of such symptoms and when no other cause can be found. If the thymus is responsible or partly responsible for them, they should be relieved by from one to three such irradiations.

If such a condition as status thymicolymphaticus exists, and if it is in any way related to sudden death, there is no justification for the belief that radiologic treatment or extirpation of the thymus or administration of thymus extracts would have prevented such death. Abnormalities of the thymus could only be part of such a syndrome.

Present knowledge of the functions of the thymus has not led to any clinical implications which are helpful in the treatment of endocrine syndromes presumably associated with thymic abnormality. Any such abnormality would be only part of a pluriglandular syndrome.

14. Rowntree, L. G., and Einhorn, N. H.: Experimental Phases of the Thymus Problem, read before the Section on Pediatrics at the Eighty-Ninth Annual Session of the American Medical Association, San Francisco, June 16, 1938.

15. Leyton, Otto; Turnbull, H. M., and Bratton, A. B.: Primary Cancer of the Thymus with Pluriglandular Disturbance, J. Path. & Bact. **34**: 635-660 (Sept.) 1931.

RADIOLOGY'S RESPONSIBILITY IN THE DIAGNOSIS AND TREATMENT OF THYMIC HYPERPLASIA

CLYDE K. HASLEY, M.D.

DETROIT

Is the present lay concept of thymic hyperplasia based on medical facts or on medical fabrications? No one can deny the statement that the general public is thymus conscious. Mothers with infants turn pale when told that cyanosis and difficulty in breathing may indicate a very slight enlargement of the thymus, and others whose infants have been treated for thymic enlargement praise and glorify Dr. Doe for his mystical and miraculous ability to detect and cure thymic disease. The public is thymus conscious; in fact, overly thymus conscious. A few legislative-minded lawyers have asked if the thymic syndrome is over or under emphasized. State supreme courts in certain instances have made and make decisions after reviewing medical facts and medical fabrications. Who is responsible for this unwarranted concern?

The unusual interest in thymic disease can be traced back to the physician, more particularly the radiologist, the pediatrician and the pathologist. In the highly specialized medical groups on radiology and pediatrics various and conflicting ideas have been expressed. One of the present debatable contentions reverts back to the time of Kopp,[1] in 1830, who drew attention to the fact that an enlarged thymus was present in some infants in whom sudden death had occurred during an attack of stridor and difficulty in breathing. Kopp was perhaps the first author to advance the theory that death was due to the mechanical pressure of an enlarged thymus on the trachea and the other mediastinal structures. In spite of the subsequent experimental work to the contrary, this concept of mechanical obstructive respiratory death is still accepted by a few physicians, although the majority believe that death in cases of enlarged thymus and of status lymphaticus is due to cardiac failure, and many physicians, after years of careful study, observation and research, are convinced that mechanical death never results from enlargement of the thymus. Their conclusions are based on the fact that the consistency of the largest thymus ever demonstrated was not such as to produce sufficient pressure on the cartilaginous tracheal rings to result in tracheal collapse. In spite of this evidence, however, the size of the thymus is still a controversial issue and explains, in part at least, why the lay attitude is so highly colored with medical fabrications. Before this regrettable misconception can be eliminated it will be necessary for physicians to come to some common and nonconflicting opinions regarding the part played by the thymus in sudden death.

From an anatomic standpoint the thymus is intimately associated with other structures of the mediastinum, such as the aortic arch and the superior vena cava. If one were asked to distinguish on a roentgenogram the outline of the thymus gland from that of a blood vessel, the degree of accuracy would in many cases be minimal.

Borderline thymic hyperplasia offers many pitfalls, while the much enlarged thymus is perhaps less difficult to diagnose. Too many radiologic diagnoses are made

Read before the joint meeting of the Section on Pediatrics and the Section on Radiology at the Eighty-Ninth Annual Session of the American Medical Association, San Francisco, June 16, 1938.

1. Kopp, cited by Riesman, David, and Harris, S. F., in Christian, H. A. and Mackenzie, J.: Oxford Medicine, New York, Oxford University Press, 1928, vol. 4, p. 52.

from a single film of the chest by physicians who are not well trained in the rudiments of pulmonary radiology. No study of the chest for thymic hyperplasia is complete without a fluoroscopic study and without films made with the patient in three or four different positions and different phases of respiration and of the cardiac cycle. In the past many erroneous diagnoses of thymic hypertrophy have been made simply because the mechanics of respiration and cardiac movement were not studied sufficiently.

TABLE 1.—*Weight of the Thymus at Autopsy*

Cases	Size
5	6 to 10 Gm.
17	11 to 15 Gm.
35	16 to 20 Gm.
26	21 to 30 Gm.
13	31 to 40 Gm.
6	41 to 60 Gm.
12	Listed as large
2	Listed as small
116	

Donaldson [2] has offered a standard in centimeters for the study of thymus in newborn children. The shadow of the supracardiac mediastinum is used as a standard (normal if the shadow is two and one half times the width of the third dorsal vertebra). Measurements are made in both phases of respiration, one at the height of inspiration and the other at the height of expiration. The thymic shadow of a 5 pound (2.3 Kg.) infant, according to Donaldson's standard, can be as wide as that of a 10 or 12 pound (4.5 to 5.4 Kg.) baby.

Obviously, such a standard is open to criticism. Moreover, the thymic borders, if they can be distinguished on a roentgenogram, are not those of a fixed rigid structure with a definitely defined margin. It would seem, then, that the size of the thymus, which varies with the mediastinal shadow in the different phases of the cardiac cycle and of respiration, cannot be accepted as the actual measurement of the thymus when an incomplete roentgenographic study is made.

TABLE 2.—*Classification of Cases According to Age*

Cases	Age	Cases	Age
14	1 day or less	11	12 months
1	2 days	1	14 months
2	1 month	1	15 months
4	1½ months	1	16 months
9	2 months	5	18 months
8	3 months	1	20 months
8	4 months	4	24 months
6	5 months	5	30 months
7	6 months	8	36 months
2	7 months	2	48 months
6	8 months	3	60 months
1	9 months	2	108 months
2	10 months	2	Not listed
		116	

Hasley and DeTomasi [3] have shown that the superior cardiac-mediastinal shadow varies as much as 3 to 4 cm. within ten to fifteen seconds, as recorded on serial roentgenograms made with the Jarre Cinex camera.

In the light of present knowledge regarding the mechanical movement of the mediastinum in respiration and the various phases of the cardiac cycle, a satisfactory x-ray standard for the thymic size may never be established, as so many variable mechanical factors enter into the establishment of such a standard, such as the questions Should the outline of the supracardiac mediastinal shadow in diastole or systole be accepted? Should it be in inspiration or in expiration? or Should it be in some intermediate phase? The inspiratory phase has been suggested by many observers.

Even though it were possible to establish a satisfactory normal standard for the size of the thymus in relation to the age, such a standard would be of but little actual value, as it overlooks the physiologic fact that the parenchyma of the gland has a secretory function which cannot be measured by size or weight. It does not hold that all thymic glands have proportionate secretory functions any more than it would hold that the thyroid glands function directly and proportionately to their size and weight. The bulk of the thymus changes too with various constitutional diseases.

It has been demonstrated in postmortem material that many of the largest thymuses have not actually been a factor in death.

Therefore the radiologic examination should not be accepted and sold to the public as the "supreme court of thymic disease."

The radiologist, of course, is interested in all phases of the physiology of the thymus which have to do with metabolism, growth, sexual development or calcium metabolism, but he is more concerned in that phase which may be in some way associated with the factors implicated in the shock mechanism of the body.

TABLE 3.—*Classification of Cases According to Weight of Thymus*

Weight (Gm.)	Age	Symptoms
20	6 months	Dyspnea and cyanosis 1 day
23	2½ years	Operative death
25	Unknown	
26	7 months	Pneumonia
26	4 years	Sudden collapse
30	6 weeks	Cyanosis for few hours
35	3 months	No symptoms
40	3 years	Pneumonia
40	3 years	Hoarseness 3 days
50	5 months	Attack of cyanosis 1 month

This constitutes radiology's responsibility in the diagnosis of thymic hyperplasia.

An x-ray report of thymic enlargement should not be interpreted by the pediatrician as indicating the necessity of immediate roentgen treatment. In the past many physicians have insisted that in every case in which the x-ray examination is doubtful or positive a series of roentgen treatments should be given. Such a vicious practice has discredited x-ray diagnosis and roentgen therapy. As a matter of fact, in only a small percentage of cases is roentgen therapy actually needed. Would it not be better to advise roentgen therapy when other stigmas of a lymphatic constitution are present? For it is in such cases, because of the constitutional defect, that susceptibility to shock exists.

The shock mechanism has something to do with the reaction of the smooth muscles and the response of the autonomic nervous system. The secretory function of the thymus gland may be in some way associated with this mechanism. Hammar [4] expressed the opinion that the functional unit of the thymus is Hassall's corpuscle, while a few other authors have stated the belief that it may be the thymocyte or even the lymphocyte. Experimental work has been done with various kinds of extracts from the thymus gland, some of which have

2. Donaldson, S. W.: A Study of the Relation Between Birth Weight and Size of the Thymus Shadow in 2,000 Newborn, Ohio State M. J. **34**: 5 (May) 1938.

3. Hasley, C. K., and DeTomasi, R. Q.: Cinex-Camera Studies of the Thymus in Infants and Children, J. Michigan M. Soc. **29**: 25-28, (Jan.) 1930.

4. Hammar, cited by Riesman, David, and Harris, S. F., in Christian, H. A., and Mackenzie, James: Oxford Medicine, New York, Oxford University Press, 1928, vol. 4, p. 51.

been like or similar to extracts from other lymphoid structures. It is interesting to note that in Asher's [5] laboratory a preparation of thymic extract was made which gave a peptide reaction. Symmers [6] had advanced the view that sudden death in cases of status lymphaticus is due to anaphylaxis resulting from sensitization and shock of the nucleoproteins from the necrotic germinal centers. These observations can be offered as evidence to support the theory of anaphylactic death in cases of status lymphaticus. Recently many allergists have turned to the theory of anaphylaxis expressed by Waldbott.[7] In fact, the late Dr. Warthin [8] stated that death in cases of thymus lymphaticus was due to a constitutional defect or anomaly and intimated that thymic enlargement, which was usually found in a moderate degree, was only a small part of the pathologic picture and not actually the cause of death. In this respect Warthin supported the theory which was expressed by Paltauf as early as 1890.

To further the contention that the size of the thymus gland is a somewhat incidental finding in relation to the cause of death, the tabulated autopsy material from the Children's Hospital of Michigan [9] is offered. Records of 116 autopsies are included in this survey—seventy-two of males, forty-two of females and two of persons unclassified as to sex. No attempt was made to select the cases, and the study extends back over approximately eight years. In some of the cases roentgen treatment was used, but in none were diagnostic roentgenograms made just before death. Consequently it was impossible to trace the outline of the superior cardiac mediastinal shadow with the results of autopsy, but it was noted that in subsequent cases in which roentgenograms were made the x-ray appearances and the size of the supracardiac mediastinal region did not closely coincide with the conditions at autopsy. Two such cases will be discussed in detail later.

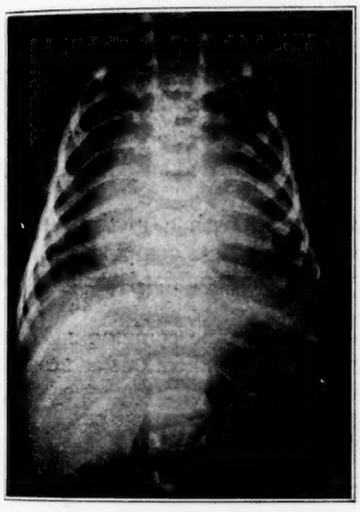

Fig. 1.—Postmortem appearance in case 1.

The weight of the thymus at autopsy, regardless of the age, is shown in table 1. The classification of cases according to age is given in table 2.

Among patients of 1 day or less, five deaths occurred within a few hours after birth. In only one of these was there an enlarged thymus; this weighed 36 Gm. and was found in a monstrosity. All of these deaths were due to congenital heart disease and atelectasis. In the remaining nine patients listed as 1 day old cyanosis was given as the chief symptom. In two of these cases the thymus was slightly enlarged, and in all of the cases cyanosis apparently was due to a cardiac condition. In ten, or 8 per cent, of the 116 cases, the diagnosis on the basis of postmortem observations was status lymphaticus. These cases deserve particular study. In table 3 they are classified according to thymic weight, and it should be noted that the symptoms of cyanosis and dyspnea were totally lacking or present only a relatively short time before death. In every case except one the thymus was slightly enlarged; in this it was excessively enlarged, weighing 50 Gm. Attacks of cyanosis and dyspnea had been present for a month.

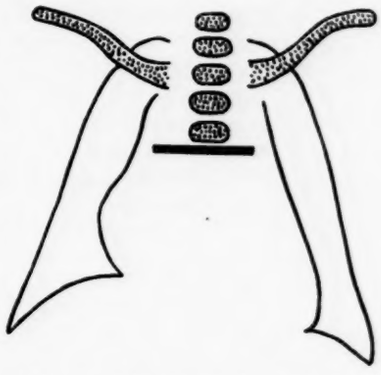

Fig. 2.—Animated drawing made from the roentgenogram in case 1. The superimposed heavy black line represents the actual width of the thymus, as found on the dissecting table.

The observations of this autopsy material support those of Symmers, who in 4,000 autopsies found 249 cases of status lymphaticus, of which 118 were instances of status lymphaticus proper.

Two cases observed post mortem and not included in table 3 deserve special attention. In one the thymus gland weighed 135 Gm. and the right lobe was the size of an egg. There were no symptoms referable to thymic enlargement. There was leukemic infiltration of the thymus. In the second case the thymus gland was greatly enlarged, and again there were no symptoms referable to thymic enlargement. A tumor mass the size of a baseball was demonstrated. The thymus proved to be malignant, and distant metastases to the retroperitoneal lymph nodes, pancreas and kidneys were demonstrated.

To further my studies a few of the infants' chests were roentgenographed in the postero-anterior and the lateral position just before the autopsy. The anterior wall of the chest was then removed to expose the thymus, and the thymus was measured, removed, weighed and remeasured. The corresponding roentgenograms were then traced, the heart, the superior mediastinum, the diaphragm, the lateral walls of the chest and the bony landmarks being outlined. It was found that the width of the supracardiac mediastinal shadow on the roentgenograms actually measured more than that of the dissected thymus even after generous allowance for a correcting factor, as the x-ray exposure was made at a distance of 30 inches (76 cm.).

Fig. 3.—Postmortem appearance in case 2.

The postmortem x-ray observations in two cases are illustrated by both actual roentgenograms and animated drawings which are actual tracings of them.

Figure 1 is the postmortem roentgenogram in case 1.

5. Asher, Doris: Biochem. Ztschr. **257**: 209 (Jan.) 1933.
6. Symmers, Douglas: Am. J. Surg. **26**: 7 (Oct.) 1934.
7. Waldbott, G. L.: So-Called "Thymic Death"; Pathologic Process in Thirty-Four Cases, Am. J. Dis. Child. **47**: 41-60 (Jan.) 1934.
8. Warthin, A. S.: Editorial, Ann. Int. Med. **4**: 1472 (May) 1931.
9. Dr. Martha Effie Madsen, pathologist, Children's Hospital of Michigan gave me permission to use the autopsy material.

Figure 2 is the animated drawing for case 1. Superimposed on this is a heavy black line which represents the actual width of the thymus gland as found on the dissecting table. It will be noted that the outline of the supracardiac mediastinal shadow was approximately 9 mm. wider than the black line which represents the width of the thymus. The actual weight of this thymus gland was 4.1 Gm., and it measured 3 cm. long, 2.4 cm. wide and 2 cm. thick. With 12 to 15 Gm. as the normal thymic weight at birth, a figure used by various anatomists, the weight of the thymic gland in this particular instance was only one third of normal; yet, with the standard that the superior mediastinal shadow should be two and one-half times the width of the third dorsal vertebra, this case would be diagnosed as showing evidence of enlargement.

Figure 3 is the postmortem roentgenogram in case 2.

Figure 4 is the animated drawing for case 2. In this case the thymus weighed 7.7 Gm.—approximately two thirds of the normal birth weight, and again with the standard that the superior mediastinal shadow should be two and one-half times the width of the third dorsal vertebra, this case would be diagnosed as showing evidence of enlargement.

Figure 5 is the superimposition of the two animated drawings, figures 2 and 4. It is to be noted that the superior mediastinal shadow at the level of the third dorsal vertebra measures approximately the same on the two roentgenograms, in spite of the fact that the one gland weighed 4.1 Gm. and the other 7.7 Gm. From the x-ray examination there appears to be nothing but a slight difference in the size of the thoracic cage, which is not sufficient to indicate that one thymus gland is almost twice as heavy as the other; yet, if one should be asked to give an opinion from this single examination, as is so often done, the diagnosis of thymic hyperplasia would undoubtedly be made, whereas in reality there was marked hypoplasia in both cases.

From my studies of cases referred to in this paper, roentgen therapy was indicated in only a few cases. Status lymphaticus was demonstrated in only 8 per cent and in those cases autopsy did not support the contention that the thymus actually was the cause of death. In the cases in which the thymus was largest, there were no symptoms of respiratory embarrassment. Consequently the discovery—accidental or intentional—of thymic hypertrophy does not necessarily indicate that roentgen therapy is imperative.

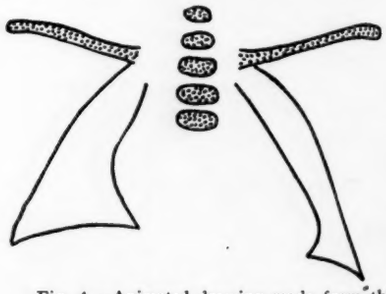

Fig. 4.—Animated drawing made from the roentgenogram in case 2.

During the past five years in only a few cases on which the diagnosis of thymic hypertrophy was made on x-ray examination has treatment been given, and in spite of the decrease in treatment, as far as can be determined, so-called thymic deaths have not increased. Hence the opinion regarding the need of roentgen therapy in thymic hyperplasia is changing. It is my opinion that in only a few cases is roentgen therapy indicated and, if it is deemed advisable to try a therapeutic exposure, treatments should be given cautiously in order that there may be no delayed x-ray effects. In my experience a technic which corresponds much to that used for ordinary infection has produced the desired result. My technic has consisted of administration in one sitting of from 40 to 80 roentgens filtered through 4 mm. of aluminum, with the thyroid gland protected. This technic has been used for many years, and some cases in which treatment was given from ten to twelve years ago have been recently observed and no mental or physical retardation has been discovered. The delayed x-ray effects which have recently been reported in the literature are apparently due to overdosing. The responsibility of radiology then in the treatment of thymic hypertrophy consists of giving small, fractional, well filtered doses only in cases of extreme involvement. It is much better to err on the side of undertreatment than on the side of overtreatment.

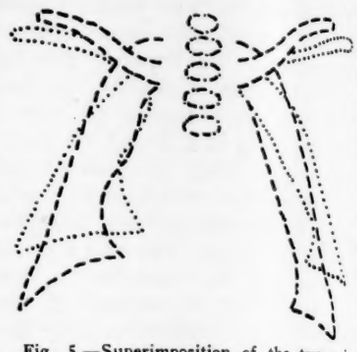

Fig. 5.—Superimposition of the two animated drawings (figs. 2 and 4).

CONCLUSIONS

1. Isn't status lymphaticus a constitutional disease in which thymic hypertrophy is of little consequence in the cause of death?
2. Isn't respiratory thymic death a myth?
3. Physicians must come to some common and nonconflicting opinion regarding the standard for the diagnosis of thymic hyperplasia.
4. Physicians must come to some common and nonconflicting opinion regarding the indications and contraindications for radiotherapy in thymic hypertrophy.

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ABSTRACT OF DISCUSSION

ON PAPERS OF DRS. MITCHELL AND WARKANY AND DR. HASLEY

DR. W. EDWARD CHAMBERLAIN, Philadelphia: Dr. Edith Boyd and I worked together and argued about the thymus back in 1922 at Stanford University Hospital, and I find her recent work and her ideas on this subject helpful. When the American Medical Association meets in San Francisco and the Sections on Radiology and on Pediatrics meet together, I find myself talking to a great many men who know what I think about thymic enlargement and its roentgen therapy. What might be the indications for roentgen therapy to the thymus? Shall it be said that x-ray evidence of a certain size of the organ is an indication for roentgen treatment? I do not feel so. In 1919 I discovered accidentally a greatly enlarged thymus. It was a little bit larger than the heart of the patient, a 1 year old infant. The accidental discovery occurred because Dr. Langley Porter of San Francisco asked me to find for him a perfectly normal child at the age of 1 year with a thorax that appeared normal enough on x-ray examination to be used in his book on the young child. This child had never had a cold, had never been ill in any way and was selected for this study on her first birthday, and this tremendous enlargement of the thymus was discovered. I did not treat that thymus. However, the enlargement gradually disappeared, as was seen in subsequent films. A strange thing happened when she was 5 years old: One of the ear, nose and throat specialists of Oakland, Calif., tried to put a finger into her nasopharynx to see whether she had adenoids, and she bit his finger and he sent her to the hospital and gave an anesthetic. As soon as she had the first whiff or so of the anesthetic she became cyanotic and stopped breathing. She began to breathe again, however,

and is today 19 years old and in perfect health, with normal mediastinal and pulmonary shadows. Who does not know of instances in which anesthesia has resulted in such an episode and at the time x-ray study showed perhaps the slightest degree of shadow in that region? I am convinced now that there is no additional evidence to indicate that I should have treated that thymus just because the roentgenogram showed it to be enlarged. If x-ray evidence of thymic enlargement is not an indication for roentgen therapy—that is, when it exists in a symptomless child—is stertor an indication? Again I say no, because the kind of stertor that has been present in the children referred to me for roentgen therapy has not been, in my opinion, due to thymic enlargement. I have a case in which the thymus did produce stertor, and the type of stertor which was produced in this instance of definite tremendous thymic enlargement was this kind of stertor. The trachea was definitely compressed, and the ingress as well as the egress of air was interfered with. The child was kept busy trying to get air in and out past this tremendous enlargement. The cause turned out to be thymoma.

DR. EDITH BOYD, Minneapolis: As medical students, most of the members saw only a microscopic section of the thymus and learned to distinguish it from a lymph node by those queer things, Hassall's corpuscles. When I started doing autopsies of children, I discovered the thymus of the child was quite different from that of the adult. In the newborn infant the free margins of the lungs overlap two structures of equal prominence, the heart and the thymus. The thymus is attached to the pericardium and fitted closely round the innominate vein. The expanding lungs gradually mold the broad soft fetal thymus into the elongated organ of the newborn. At the same time the weight of the thymus, like that of the body, has a temporary neonatal loss. The thymus and body both double their weight by the age of 6 months. The body triples its weight by one year. The thymus does not do so before five years. Obviously, after six months the thymus will begin to be a relatively insignificant structure. A weight of 20 Gm., ordinarily considered an indication of status thymicolymphaticus, is below the average weight in the period in which thymic enlargement is supposed to occur frequently and not above the probable zone of normal variation for any age. All parenchymatous structures of the thymus increase in size after birth but are markedly reduced by maturity, while the supporting connective tissue and fat are increasing steadily in amount and variability. The cortex, which is chiefly lymphoid tissue, increases more rapidly than the medulla during early childhood, but both decrease in weight after puberty. These standards of normal age change and variation in the thymus were based on deaths, within twenty-four hours, from gross trauma and poisons. I think that the organs observed in such cases may be considered normal. In infections lasting from one to seven days, fortuitous involution reduces the thymus to such an extent that in 69 per cent of cases it is below the 25 percentile line, where it is expected in only 25 per cent, and when illness has lasted one week or more the incidence of such shrinkage reaches 94 per cent. The concept of status thymicolymphaticus arose because thymuses from persons dying of such wasting diseases as tuberculosis and gastroenteritis were considered normal while the normal prominent thymus was called pathologic.

DR. RANDOLPH G. FLOOD, San Francisco: During the last three years I have been gathering statistical data on the size of the superior mediastinum during the first twelve months of life. The data were obtained from anteroposterior orthodiagrammatic tracings, with a fluoroscope, and the superior mediastinal area as well as the total thoracic area were obtained from these tracings with a planometer. I found that I could obtain consistent measurements in this manner, provided the infant was not crying. Further, I was able to show that the fluctuations of the superior mediastinum were negligible during quiet breathing. With regard to the effect of the thymus on body build in my series of 1,124 tracings, I was under the impression that the infants who had the largest thymic area at 1 month were larger and heavier at 1 year than those with small superior mediastinal areas. To verify this I subjected 100 infants whose superior mediastinal area had been obtained at 1 month and whose weight and measurements were again taken when they reached 1 year to statistical analysis. I found that the correlation between the area of the superior mediastinum at 1 month and the weight at 1 year demonstrated a correlation coefficient of 0.2815. This demonstrates a distinct tendency for those children with the relatively larger thymic areas to weigh more at 1 year.

DR. HERBERT E. COE, Seattle: In an experience covering some 2,500 operations on infants under 18 months it has been my misfortune to see six or eight of these thymic deaths. They are not anesthetic deaths and they are not due to obstruction of the respiratory tract. The outstanding characteristic is the complete absence of respiratory effort, as if there might be inhibition or paralysis of the respiratory center. I have tried all the ordinary methods of resuscitation without success. The heart beat does not vary perceptibly either in rate or in character until near the end. When artificial respiration is stopped, the color fades and the skin becomes cyanotic. The pink color may be restored for some time by renewing the artificial respiration, but there is no respiratory effort in spite of the fact that these children are in good physical condition and not infected or weak. In my groping about for an explanation of this phenomenon it has occurred to me that the involution of the thymus early in life may be significant. When an organ is no longer necessary for preservation of the individual or the species, it undergoes involution. Is it possible that one of the functions of the thymus is to inhibit respiration before birth? Is there perhaps a thymic hormone which is activated when amniotic fluid touches the pharynx? Is this the reason for the immediate cessation of respiration occasionally noted when a retropharyngeal abscess is incised? Dr. Boyd has shown that the portion of the thymus containing Hassall's corpuscles is the first to undergo involution. Are they perhaps concerned with the production of the hormone in question?

DR. HENRY F. HELMHOLZ, Rochester, Minn.: It is evidently not known to what sudden death in childhood is due. However, I think that two things have been definitely decided, namely that thymic stridor must be an inspiratory and expiratory stridor and that sudden death cannot be prevented by roentgen treatment of the thymus. I think these are two important points on which to have agreed. To assume, from the medicolegal point of view, that death during or shortly after anesthesia was due to an enlarged thymus and could have been prevented by roentgen treatment of the thymus is absolutely unwarranted.

DR. CLYDE K. HASLEY, Detroit: There wasn't time to go into the responsibility of the radiologist for treatment, which is, briefly, this: If roentgen treatment is insisted on—and I think it is usually insisted on when the radiologist would believe it was not indicated—it should be given as though an infection were being treated, with from 40 to 80 roentgens, well filtered, as an average dose. It is perfectly safe to give as much as 100 roentgens if one or two treatments are given. I thank Dr. Helmholz particularly for his conclusions, because I believe thymic death cannot be prevented by roentgen treatment.

Sources of Phosphorus.—Phosphorus is to calcium as thunder is to lightning; the two together are required to make our bones and teeth. We must have our phosphorus and plenty of it, twice as much as calcium (about 1.4 grams per day) for we turn over our body's total supply in less than three years. The greater need comes from the fact that phosphorus is required by some of the body proteins, phospholipins and phosphatases. Fortunately most foods are more plentiful in phosphorus than in calcium, the notable exception being milk. Meat and egg-yolk are high in phosphorus; 9 to 10 ounces of egg-yolk or 13 ounces of round steak would be sufficient for the daily supply. If you wouldn't care for 7 ounces of cocoa powder per day you could satisfy your phosphorus needs with a little less than 7 ounces of American cheese or a little more than that of dried navy beans. Infant feedings should be supplemented with egg-yolks for there are about equal amounts of calcium and phosphorus in milk and the body demands about twice as much of the latter for satisfactory growth. With this exception, however, it is generally true that if the calcium requirement is met on a mixed diet the phosphorus quota has been filled as well.—Furnas, C. C., and Furnas, S. M.: Man, Bread and Destiny, New York, Reynal & Hitchcock, 1937.

THE THYMUS

STUDIES OF SOME CHANGES IN THE GONADS AND PITUITARY FOLLOWING ITS DESTRUCTION BY ROENTGEN IRRADIATION

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Nearly a century has elapsed since the first experimental investigation of the physiology of the thymus was reported by Restelli,[1] and numerous investigators have since added many data, yet the function of the thymus is still to be defined accurately. We outlined in a previous publication [2] the factors which we believe are responsible for the diverse opinions regarding the activity of this gland.

About two years ago we undertook to study in rats the effect of deprivation of the thymus on gastric function following roentgen therapy. We quickly recognized that striking changes occurred in the testes of the treated animals. These observations led us to a more detailed study of these effects, which constitute the chief feature of our present report.

In previous publications [3] we explained why we selected the rat for study and described the method and dose of roentgen therapy used; we will give here only a brief summary of our earlier results.

The exposures were made anteriorly through the superior mediastinum. Treatments were given daily and were begun when the rats were 48 hours old. The average dose was 550 roentgens and was administered on four successive days. The animals were immobilized on a board with adhesive tape. The center of the portal was determined by roentgenoscopic examination and indicated by an ink mark on the skin. The portal was from 8 to 10 mm. in diameter. The rest of the animal was properly protected by a lead sheet. With this amount of radiation, atrophy of the thymus occurred rapidly and in most instances was so complete that no thymic tissue could be recognized at autopsy. We found that this could occur within ten days of treatment.

In some cases, perhaps through movement of the animal during treatment, the rays did not remain perfectly centered and incomplete atrophy of the thymus occurred. Where the residue was small, the effects on the animal were no different from those produced in other animals by complete anatomic destruction of the thymus. When more than a fourth of the gland remained, the effects of deprivation of thymus were diminished. These lessened effects seemed to occur in direct proportion to the size of the remaining thymus. These observations are of interest, especially in relation to our method of destruction of the thymus. We previously pointed out that in the past the study of the effects of deprivation of thymus generally took place after surgical removal of the gland. We also indicated that incomplete thymectomy was followed by hypertrophy of the remaining tissue and was probably one of the most important factors in conflicting results which have been reported. Furthermore, our results indicated that complete anatomic removal of the gland was not necessary to produce the striking changes we noted. The quantitative difference found when larger portions of the gland remained was an indication that, as with all the established organs of internal secretion, the remaining portion of the gland must be below a certain minimum to cause recognizable changes. Our data also called for an opinion contrary to that expressed by Einhorn and Rowntree [4] that surgical thymectomy is a more satisfactory method for complete removal of the thymus than roentgen irradiation. As a matter of fact, we believe that permanent functional destruction of the thymus is easier and much more certain with the x-rays than by surgical removal.

In our previous reports we detailed changes noted in animals for the most part up to 100 days old and in a few instances up to 150 days. In treated male animals observed up to 100 days of age we saw striking changes. All observations were made on litter mates. During this period complete or nearly complete destruction of the thymus was followed by almost complete arrest of development of the testes. This was confirmed microscopically. In most instances the seminiferous tubules were represented by a single layer of marginal cells. Under these conditions it was not surprising that the animals when mated with normal females failed to procreate. We also found striking changes in the anterior pituitary in these males. At 20 days of age some difference in appearance of the anterior pituitary was noticeable when compared with that of the litter mate used as a control. This increased progressively until the rat was 100 days of age. There developed, as the animal grew older, a picture of the typical castrate pituitary, with its increase, enlargement and vacuolation of the basophils. In view of what appears to be a temporary physiologic castration, we considered the pituitary changes as secondary manifestations not directly related to the deprivation of thymus.

In the female deprivation of thymus early in life does not have any appreciable effect on the sexual apparatus. Although the thymus was destroyed just as effectively as in the male, no anatomic or functional impairment of the ovaries resulted. Microscopically no difference could be detected in a comparison with the ovaries of litter mates used as controls. The estrous cycle was not interfered with and reproduction equaled that of the controls after mating with fertile males. No microscopic changes appeared in the anterior pituitary.

Since these results were reported, we have been able to study a larger group of animals beyond the 100 day period as well as carry out numerous control experiments.

In many treated male animals by the time the 150 day period was reached, and in nearly all beyond the 200 day period, there were marked reparative changes: the testes were regenerated to a point at which it was impossible to distinguish them from those of the control animals; at mating the males were fertile. In order to establish

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1. Restelli, Antonio: De thymo: Observationes anatomico-physiologico-pathologicae, Ticini Regŭ ex typog. Fusi. et soci, 1845, p. 46.

2. Gershon-Cohen, Jacob; Shay, Harry; Fels, Samuel S.; Meranze Theodore, and Meranze, D. R.: The Thymus: The Effect of Atrophy of the Thymus Following Roentgen Irradiation, Am. J. Roentgenol. **39:** 263 (Feb.) 1938.

3. Gershon-Cohen, Jacob; Shay, Harry; Fels, Samuel S.; Meranze, Theodore, and Meranze, D. R.: Studies in the Physiology of the Thymus, Science **87:** 20 (Jan. 7) 1938; footnote 2.

4. Einhorn, N. H., and Rowntree, L. G.: The Biological Effects of Thymectomy, Endocrinology **21:** 659 (Sept.) 1937.

that regeneration really took place, we removed one testicle at 50 days from control and treated males and killed the animals at from 150 to 200 days. The testes removed at 50 days showed the striking differences between the control and the treated animal previously recorded. However, when the animals were killed at the later periods and the remaining testes examined, these differences had disappeared. The pituitaries of these animals at the time they were killed showed no appreciable differences microscopically.

These results, we believe, permit interesting speculation. The thymus in the rat reaches the peak of its growth between 85 and 100 days. Since the regeneration in the testes begins only after 100 days—a time when thymic development has normally passed its zenith—our results confirm the usual concept that its effective function is limited to the prepuberal period. During this period it appears that adequate thymic activity is necessary for the proper development of the testes. The corollary that during the prepuberal period the pituitary and adrenal glands are themselves unable to supply the necessary stimulus for proper testicular growth also seems justified. The fact that the removal of the pituitary in young animals is followed by testicular atrophy indicates that the thymic agent operates through the pituitary. We have some further indirect evidence in favor of such a mechanism. Although we were unable to show any striking anatomic or functional change in the ovary of rats whose thymus had been destroyed, recent experiences with injections of thymus extract have produced in our female animals almost continuous estrus. This too would suggest that action of the thymus on the gonads is probably by way of the pituitary.

Control experiments were performed because we realized that our experimental method—the use of x-rays to destroy the thymus—was open to criticism on the ground that our results might be due to an x-ray effect on the body generally, since we were using a fairly large dose, to an effect on the sympathetic trunks which must come in the field of treatment, or to stray radiation acting on the testes.

We were certain from the care which was taken to shield the body that stray radiation had no effect. Nevertheless, since a number of roentgenologists were still in doubt, we undertook to rule out such a possibility as well. Control experiments were done in which a similar amount of x-ray radiation was delivered over similar portals in an area below the thymus. These experiments, in which the animals were studied during the first hundred days of life, showed no difference in the testes between the treated and the control animals. Since this exposure was even closer to the testes than that delivered to the thymus, one can be certain that our previous observations were not the result of stray radiation to the testes. It is certain also that they were not purely a general x-ray effect. As the sympathetic trunks were equally exposed, damage to those trunks as an explanation of our previous results is also eliminated. The resultant data remove all doubts. In some animals we tried to give the exposures above the area of the thymus. This was found generally impossible, because in order to avoid the region of the thyroid the upper part of the thymus was usually involved, so that varying degrees of destruction of the thymus resulted in this group.

Previous experimental results concerning the role of thymic function in gonadal activity are just as conflicting as they are in the other phases of the problem. With the discovery by Calzolari [5] in 1898 that the thymus continues uninvoluted in animals castrated before maturity, a definite relation between the thymus and the gonads was established. This was confirmed by Henderson [6] and others. Paton [7] in 1905 concluded from studies of extirpation of the thymus in the guinea pig that the thymus inhibits the growth of the testes in immature but not in mature animals. His results coupled with those of Calzolari led him to the view that before the period of sexual maturity the thymus and sex glands act antagonistically, each exerting an inhibitory influence on the other. Adler [8] from studies on tadpoles and frogs came to a similar conclusion. However, in 1908 Soli [9] reported effects of thymectomy in rabbits, fowls and guinea pigs at variance with those reported by Paton and by Adler. He found that the removal of the thymus causes a delay in development of the testes in all three species, most marked in the cock, less in the rabbit and least in the guinea pig. He also reported analogous effects of thymectomy on the ovaries of rabbits and guinea pigs. In the testes of thymectomized puppies Hart and Nordmann [10] found an increase in the interstitial cells and atrophy of the sperm cells, with an absence of signs of spermatogenesis. In contrast to these conflicting positive results of thymectomy, Klose and Vogt,[11] Lucien and Parisot,[12] Pappenheimer [13] and Park and McClure [14] failed to see any changes in the testes after thymectomy.

While in our previous publication [2] we indicated what we believed to be the causes for the variable results regarding thymic function reported in the literature, we believe our present observations indicate another important explanation of such discrepancies. If, as our results indicate, the effect of deprivation of thymus on the testes is operative only during the prepuberal period and regeneration of such damage may occur later in life, it is not unlikely that the age of the animal at the time of observation, as well as at the time of removal or destruction of the thymus, will determine whether the results of deprivation will be positive or negative.

SUMMARY

Our results indicate (1) that the complete or nearly complete destruction of the thymus early in the life of the rat results in an arrest of development of the spermatogenic portion of the testes; (2) that this physiologic castration is accompanied by the development of a typical castrate pituitary picture; (3) that these changes are progressive to approximately the age of 100 days, the time when the thymus in the

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11. Klose, H., and Vogt, H.: Klinik und Biologie der Thymusdrüse mit besonderer Berücksichtigung ihrer Beziehungen zu Knochen und Nervensystem, Beitr. z. klin. Chir. **69:** 1, 1910.

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13. Pappenheimer, A. M.: The Effects of Early Extirpation of the Thymus in Albino Rats, J. Exper. Med. **19:** 319, 1914.

14. Park, E. A., and McClure, R. D.: The Results of Thymus Extirpation in the Dog, Am. J. Dis. Child. **18:** 317 (Nov.) 1919.

rat has reached the peak of its growth; (4) that during this period all males with destruction of the thymus remain sterile; (5) that after this period reparative processes set in so that in fifty to a hundred days more the testes have completely regenerated, the pituitary has returned to its normal state and the animals are able to reproduce; (6) that similar destruction of the thymus in the female produces no recognizable functional or anatomic changes in the ovary or pituitary; (7) that control experiments prove that none of the effects seen on the testes were a pure x-ray effect, an effect of stray radiation acting directly on the testes or a result of damage to the sympathetic plexus; (8) that the thymic effect operates through the pituitary; (9) that the fact that the reparative processes are possible indicates another important explanation for the differing experimental results reported in the literature.

These regenerative results in older animals will doubtless explain too why so little damage has resulted from roentgen treatment to the thymus. Although roentgenologists in recent years have employed an x-ray dose to the thymus which certainly does not cause any secondary changes in the testes, it is possible that the exposures during the earlier days of roentgen therapy were excessive. Even in such cases roentgenologists and pediatricians need not fear that any permanent harm was done.

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ABSTRACT OF DISCUSSION

DR. EDWARD L. JENKINSON, Chicago: This work is conclusive as it applies to rats. For many years radiologists have been treating children with large thymus glands, and from my experience and from reading the literature there is apparently a marked difference in the response to irradiation by rats and by human beings. Successful and adequate treatment of enlarged thymus glands by irradiation does not call for large doses. Usually not over 100 roentgens is given to one area. It has been my practice for years to give the patient 100 roentgens over the anterior portion of the thymus and one week later give 100 roentgens over the posterior portion. Usually this amount causes a marked reduction in the size of the gland and improvement in the symptoms. If after these two treatments there has not been a definite decrease in the size of the thymus and improvement in the symptoms, the shadow is probably not due to an enlarged thymus. The treatment may be repeated in one month. Over twenty-three years I have treated a great many patients with enlarged thymus glands. I have not seen any bad effects from the irradiation. I do not recall any patient who later in life married who was not able to have children. I do not believe that the percentage of sterility in the treated patients is any higher than in the average run of men and women who have not been irradiated. I should like to ask the authors whether in the irradiation of the rats the treated area was confined to the thymus. I realize that rats are small and that it is difficult to direct the rays directly to the thymus. We all know that a good many of the tissues of infants are radiosensitive and that it is important to try to confine the treatment to the area of the thymus. I should like to inquire also as to the sensitivity of the skin of rats as compared to that of human beings. Certainly it would not be advisable to treat a child for an enlarged thymus with one erythema dose every four days, such as I understand the authors have been giving the rats. I do not believe it is necessary to treat every child who has an enlarged thymus. A great many children with an enlarged thymus present no symptoms, and in the absence of symptoms, unless the patient is to be subjected to an operation, I should hesitate to give irradiation. I am a little leery about comparing results in rats and in human beings. The marked discrepancy in dosage must certainly be considered. I am not familiar with how well rats tolerate irradiation.

DR. HENRY ULLMANN, Santa Barbara, Calif.: I want to emphasize what Dr. Jenkinson just said, for when the report is published plenty of internists and pediatricians will say one should not irradiate a thymus. The points to use in arguing against that are, first, that the dose is infinitely less and, second, that anything within the therapeutic range will reduce hypertrophic tonsils but will not carry them below a normal size. Now, my doses on these, as Dr. Jenkinson said, are probably less, because my dose of 100 roentgens is measured on the skin. That means around 75 or 80 roentgens in the air. The other point is that the radiologist sometimes gets children sent to him by the pediatrician because they present a certain type of feeding problem. At least three pediatricians in Santa Barbara have found that that particular type, with no enlarged thymic shadow, will be definitely benefited by a few small doses over the mediastinum. Then the enlarged mediastinal shadow appears and will not go down with a few moderate doses, probably because of enlarged tracheobronchial glands. The children are benefited by longer courses such as would be used for tuberculous glands. In spite of this work, which I think is enormously valuable from the standpoint of the function of the thymus, I do not think it contains any basis for alarm in treating children for enlarged thymus or enlarged tracheobronchial glands.

DR. C. K. HASLEY, Detroit: I want to discuss this paper from the angle of treatment. Dr. Ullmann has already brought out the fact that the dose used for children is different from the dose used in the experimental work. At the Children's Hospital in Detroit my associates and I have made a concerted effort to follow the patients treated during the last fifteen years; we have been fortunate in following up some of them and have found that, on their return, those who have been treated with moderate doses have shown no signs of delayed mental or physical development. In the literature there have been a few cases in which it was thought there had been delayed mental and physical development because of the roentgen treatment given. Now, if that is the case, the only argument that I have to advance is that the dose was probably too large. It is not necessary to use a dose any larger than 100 roentgens. If the treatments are spaced a week apart, with the maximum number of treatments four—to get a clearing of the symptoms of difficulty in breathing and cyanosis—and if the shadow of the gland does not disappear, I think something else besides an enlarged thymus is causing it. As you know, fifteen or twenty different conditions can produce difficulty in breathing and cyanosis.

DR. HARRY SHAY, Philadelphia: I think that we ought to put ourselves straight on this problem. We did not attack this problem with any idea of discrediting roentgen therapy of the thymus; we merely used it as a means of physiologically destroying the thymus. We realize that the dose employed is far in excess of that used therapeutically, and we have stressed this point in the body of our paper. The striking observation to us was that even from serious damage produced early in life we were able to see recovery. This was particularly important in the light of what happened in the presentation of some of our earlier work at the International Congress of Radiology in Chicago. At that time most of the men were perturbed by our results. We were glad to be able to show that even if in the earlier days of roentgen therapy to the thymus some temporary damage had been done, such damage was not permanent and therefore not of real moment. We realize that present day roentgen therapy of the thymus certainly cannot produce any of the damage that we have shown in our earlier pictures, but nevertheless it was essential to show that if damage did occur it was not permanent. Dr. Jenkinson's question as to whether the thymus can be visualized in the small rat at 2 days of age can, I think, be answered in the affirmative. Dr. Cohen, who is the roentgenologist in our group, I am sure has effectively done that, because in the animals that we show at the exhibit the area of the thymus has been pretty effectively covered by the treatment.

ESTIMATION OF DISABILITY AFTER INJURIES TO BONES AND JOINTS

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With "social security" as a fixed cadastral point on the ever widening sociologic horizon, the ways and means of attaining our goal in safety are becoming of tantamount importance. Good or bad, right or wrong, such policies are here to stay and must be made actuarial, i. e. financial, successes if the present social system is to endure. Industrial as well as all other forms of health and accident insurance, as for instance compulsory state insurance against automobile accidents, are now considered an integral part of the social security setup, and it is here that the medical profession and particularly the orthopedists, who in recent years have been paying particular attention to injuries of bones and joints, can be of greatest service in the proper estimation of the disabilities incumbent on injury and, by that token, of the proper compensation therefor. The great importance of this subject can be best illustrated by the fact that in 1936 over 1 per cent of the entire population were seriously injured by automobile accidents alone and that the financial damage from automobile accidents in that year was estimated by the National Safety Council as over 3½ billion dollars.

After the temporary period of convalescence and rehabilitation is over—after orthopedic surgery and vocational rehabilitation have finished their work of restoring the injured person to useful industry when possible—comes the indefinite period of permanent disability, either partial or total.

Disability has been defined as "the inability to work with the same degree of ease and comfort as before the injury was sustained." Partial disability needs no further definition here, but, to be easily understood and uniform, its rating should be expressed not merely by the extent of the anatomic or functional loss but rather in percentages of permanent total disability, which was once defined by the International Association of Industrial Accident Boards and Commissions as "100 per cent unfitness for future industrial usefulness." But total disability cannot be so easily dismissed today. The "literal" rigid definition, once universal, has been modified by law and judicial interpretations until today it has come to represent something quite different. In war risk insurance, which the United States Supreme Court defined as an "unqualified insurance against total disability," in the case of *Lumbra* v. *United States,* 290 U. S. 551 at 558, the court declared that total disability means "any impairment of mind or body which renders it impossible for the disabled person to continuously follow his usual work or work of like character, for remuneration commensurable with that which was paid to him in his former occupation." The Supreme Court of Texas held that "total disability . . . does not imply an absolute impossibility to perform any work. A person is totally disabled when his physical condition is such that he is unable to perform or direct any work without injury to his health and when common prudence . . . would require him to desist from the performance of his duties." Arkansas and California held "when injuries received prevent him from performing all the substantial and material acts of his business or occupation in the usual and customary way"; Kentucky, "the disability is total if the insured is unable to follow his usual occupation, although he might be able to do something else"; Pennsylvania, "one so far disabled as to be unfit for continuous gainful occupation and to be reduced to the status of an occasional laborer." The majority of states, however, have taken a "middle ground" somewhere between the two previous extreme positions. Their courts, however, have failed to give a clearcut definition, for the reason that their position depends more or less on the rejection of the extreme verdicts last defined. One writer has defined the limits of this position to be as follows:

(A) That the mere inability of an assured to pursue his usual, prior or customary vocation is insufficient.

(B) That mere fanciful ability to engage in some occupation wholly beyond the assured's normal capabilities will not preclude recovery for total disability.

(C) That the entire range of gainful pursuits is to be considered but only in the light of the assured's age, training, experience, education, as well as his physical and mental qualifications.

The federal and all state governments (except of Arkansas and Mississippi) are now charged by law with the payment of compensation to injured employees, and practically all have adopted fixed schedules of percentage of loss for certain fixed disabilities, such as amputations. For instance, the complete loss of the arm at the shoulder is used as a basis for estimating such schedules; such 100 per cent loss of the arm has been variously estimated at ratings from 29 per cent of permanent total disability (New Mexico) to 56 per cent (Iowa); but the committee of the international association, already cited, recommended that a fair rating for the loss of the major arm at the shoulder by a common laborer 36 years of age would be 50 per cent of permanent total disability. This and the complete loss of the leg at the hip, also 50 per cent permanent total disability, are then the yardsticks and the schedules of percentages for other amputations and deformities have been developed from these values.

Henry [1] has given me permission to print the accompanying table of fixed values for partial disability (table 1).

The International Association of Industrial Accident Boards and Commissions has studied these problems for years, and its conclusions have been the guide for the revision of such schedules and have resulted in more uniform procedures. Some of its methods and conclusions are so valuable that the medical profession at large should be made familiar with them before attempting to estimate the percentage of loss resulting from disability. I shall cite a few of the most important conclusions (not verbatim, as time and space do not permit) and enter into a short discussion relative thereto:

1. Compensation paid for permanent disability is that paid after temporary disability ceases—that is, for the loss of earning power after healing has taken place.

2. Compensation for such permanent disability should be based on disability for a lifetime. (Only thirteen states allow this; others have a time or a money limitation.)

Read before the Section on Orthopedic Surgery at the Eighty-Ninth Annual Session of the American Medical Association, San Francisco, June 17, 1938.

1. Henry, M. O., and Evans, E. T.: Permanent Disabilities of Extremities, Minnesota Med. **14**: 171 (Feb.) 1931.

TABLE 1.—*Fixed Values for Partial Disability*

UPPER EXTREMITY

The upper extremity includes the shoulder girdle. Total loss of the upper extremity is usually defined by local state law; the average is 50 per cent permanent total disability.

I. Sternoclavicular joint
- (*a*) Ankylosis
- (*b*) Chronic dislocation } rate according to resulting loss of active motion of shoulder

II. Clavicle
- (*a*) Complete loss
- (*b*) Nonunion
- (*c*) Malunion } rate according to resulting loss of active motion of shoulder

III. Acromioclavicular joint
- (*a*) Ankylosis—as in I and II
- (*b*) Dislocation
  1. Incomplete (conoid and trapezoid ligaments intact), 5 per cent permanent total disability
  2. Complete (conoid and trapezoid ligaments torn), rate according to resulting loss of active motion of shoulder

IV. Scapula
- (*a*) Malunion
- (*b*) Loss of blade or body } rate according to resulting loss of motion of shoulder

V. Shoulder
- (*a*) Flail—40 per cent loss of extremity—which equals 20 per cent permanent total disability (unless rating for loss of motion exceeds this, in which case that rating should be used
- (*b*) Ankylosis—in Jones position (20 degrees in front of coronal plane, 50 degrees abduction), 30 per cent permanent total disability
- (*c*) Ankylosis in bad position, if operable 37.5 per cent permanent total disability (may be total loss of extremity if inoperable, i. e. patient is a poor operative risk)
- (*d*) Loss of motion
  1. Loss of elevation (useful arc normally 90 degrees from shoulder level to vertical), 17.5 per cent permanent total disability
  2. Loss of abduction (useful arc normally 90 degrees from side to shoulder level) 40 per cent; arc refers to any plane, and rotation is necessarily limited in proportion and covered in rating of arc loss

VI. Arm
- (*a*) Amputation at or above the elbow equals loss of extremity, 50 per cent permanent total disability
- (*b*) Amputation 4 inches or more below the elbow (permitting use of elbow in prosthesis), 35 per cent permanent total disability
- (*c*) Shortening nil unless actually disabling or seriously disfiguring

VII. Elbow
- (*a*) Flail, same as ankylosis in good position, plus rating for loss of motion
- (*b*) Ankylosis in Jones position (at an angle of 110 degrees), 20 per cent permanent total disability
- (*c*) Ankylosis in bad position
  1. Acute angle—if inoperable, total of arm: if operable, 60 per cent of loss of use of arm, or 30 per cent permanent total disability
  2. Obtuse angle of 110 to 155 degrees, 25 per cent permanent total disability
  3. Obtuse angle of 155 to 180 degrees, 37.5 per cent permanent total disability
- (*d*) Distortion of carrying angle of elbow (15 degree valgus), 10 per cent
- (*e*) Loss of motion
  1. Loss of flexion beyond acute angle of 80 degrees, not compensable
  2. Loss of motion (useful arc normally 80 to 175 degrees), rated on percentage loss of this range up to 37.5 per cent
- (*f*) 1. Loss of pronation and supination alone (in Jones position, i. e. midway between pronation and supination), 10 per cent
  2. Loss of pronation and supination alone in bad position, 15 per cent
  3. Loss of pronation and supination alone in Jones position when combined with disabilities of wrist or elbow, an additional 10 per cent disability
  4. Loss of pronation and supination in bad position when combined with disabilities of wrist or elbow, an additional 20 per cent disability

VIII. Wrist
- (*a*) Flail, same as ankylosis in good position plus rating for loss of motion up to 37.5 per cent maximum
- (*b*) Ankylosis (in Jones position, i. e. at an angle of 135 degrees), 12.5 per cent
- (*c*) Ankylosis in bad position (i. e. straight or in volar flexion), if operable 15 to 25 per cent (may be loss of hand if inoperable)
- (*d*) Loss of motion, percentage loss of arc; total loss equals 12.5 per cent permanent total disability
  1. Flexion-extension disability (75 per cent of motion of wrist), 18.5 per cent loss of extremity, or 9.5 per cent permanent total disability (useful arc normally is 165 degrees)
  2. Radial and ulnar abduction (25 per cent of motion of wrist), 5 per cent (useful arc is normally 30 degrees each way)

IX. Hand
- (*a*) Total loss, 70 per cent of extremity (includes loss of forearm to 4 inches [10 cm.] below the elbow), or 35 per cent permanent total disability
- (*b*) Partial loss, rated on loss of function of fingers
  1. Thumb
     - (*a*) Total loss, 20 per cent of extremity, or 10 per cent permanent total disability
     - (*b*) Ankylosis in good position (extended in apposition), 7.5 per cent permanent total disability
     - (*c*) Ankylosis in bad position, same as total loss if inoperable; if operable, 10 per cent
     - (*d*) Loss of terminal phalanx, 5 per cent permanent total disability
     - (*e*) Loss of motion ot metacarpophalangeal joint, 7.5 per cent
     - (*f*) Loss of motion of interphalangeal joint, proportion of loss of arc of motion (normal range 90 degrees), 5 per cent
  2. Index finger
     - (*a*) Total loss, 10 per cent of extremity, or 5 per cent permanent total disability
     - (*b*) Loss of one and a half or more phalanges, 5 per cent permanent total disability
     - (*c*) Loss of terminal phalanx, 2.5 per cent permanent total disability
     - (*d*) Loss of motion or ankylosis of the interphalangeal joint
       (1) Distal joint, proportion of loss of arc of motion based on 2.5 per cent
       (2) Proximal joint, proportion of loss of arc of motion based on 5 per cent
  3. Middle finger (second finger)
     - (*a*) Total loss, 5 per cent permanent total disability
     - (*b*) Other ratings, same proportion of 5 per cent as in index finger
  4. Ring finger (third finger)
     - (*a*) Total loss, 5 per cent
     - (*b*) Other ratings, same proportion of 5 per cent as in index finger
  5. Little finger (fourth finger)
     - (*a*) Total loss, 2.5 per cent
     - (*b*) Other ratings, same proportion of 2.5 per cent as in index finger

The accrued rating for loss of the use of more than one finger should not exceed the total loss of a hand, as provided previously.

Since most state laws give no definite ratings for disabilities of the spine, no attempt has been made to rate the spine or the spinal portion of the pelvis. Ratings on the pelvis are covered in this schedule only as the disability limits motion of the hip, shortening of the extremities or both.

LOWER EXTREMITY

I. Thigh
- (*a*) Amputation
  1. Stump of less than 6 inches, 100 per cent loss of leg, equal to 50 per cent permanent total disability
  2. Useful stump 6 inches below hip, 42.5 per cent
  3. Amputation 3 inches or more below knee (useful stump), 33 per cent
  4. Amputation in foot without loss of motion of ankle, 25 per cent
- (*b*) Shortening *
  1. One inch, no disability
  2. One to 2 inches, 5 to 10 per cent permanent total disability
  3. Two to 3 inches, 10 to 20 per cent permanent total disability
  4. More than 3 inches, 25 to 30 per cent permanent total disability.

Just as the shoulder is considered with relation to adjoining structures, so in the hip, motions are considered with reference to the pelvic girdle as a whole; whereas scapular motion completes the upper extremity to some extent, a similar relation does not play so great a part in the lower extremity, except in some fractures of the pelvis, especially of the acetabulum. However, the mobility of the hip is so great that the authors deemed it wise to classify these motions with specific values for each, so that the total disability could be readily ascertained.

II. Hip
- (*a*) Ankylosis in optimum position (15 degrees flexion; 10 degrees abduction and slight external rotation, or a proportionate increase in abduction dependent on shortening), 50 per cent loss of extremity, or 25 per cent permanent total disability
- (*b*) Ankylosis in bad position, 30 to 50 per cent permanent total disability if inoperable
- (*c*) Loss of motion
  1. Flexion-extension disability proportionate to loss of motion (useful arc normally 120 degrees, of which flexion is 105 degrees and extension 15 degrees); total loss of motion with flexion ankylosis equals 100 per cent loss of function of limb, or 50 per cent permanent total disability
  2. Abduction-adduction disability (useful arc normally 90 degrees, of which abduction is 45 degrees and adduction 45 degrees); total loss of abduction and adduction equals 25 per cent loss of function of limb, or 12.5 per cent permanent total disability

* The optimum position depends on the amount of shortening (Jones, Robert, and Lovett, R. W.: Orthopedic Surgery, New York, William Wood & Co., 1923, table of abductions, p. 138).

TABLE 1.—*Fixed Values for Partial Disability—Continued*

LOWER EXTREMITY—Continued

3. Internal and external rotation (useful arc normally 90 degrees, of which internal rotation is 45 degrees and external rotation 45 degrees); total loss of rotation equals 10 per cent loss of function of limb, or 5 per cent permanent total disability. Formula: The proportionate loss of flexion (25 per cent) plus the proportionate loss of abduction (12.5 per cent) plus the proportionate loss of rotation (5 per cent) equals the disability

III. Knee
- (*a*) Flail, 40 per cent permanent total disability
- (*b*) Ankylosis in good position (at an angle of 170 to 150 degrees), 30 per cent
- (*c*) Ankylosis in bad position (at an angle of less than 140 degrees) if inoperable, 40 per cent
- (*d*) Loss of motion
  1. Flexion-extension disability (useful arc normally 180 to 75 degrees). Formula: The proportionate loss of the arc (valued at 31.8 per cent permanent total disability) equals the disability
  2. Extension limited to less than 160 degrees, same as ankylosis in bad position
  3. Abnormal lateral mobility, 10 to 30 per cent, depending on function
  4. Relaxation of either or both crucial ligaments and other internal derangements, 10 to 40 per cent permanent total disability

IV. Ankle
- (*a*) Flail, 25 per cent permanent total disability
- (*b*) Ankylosis in good position, 12.5 per cent
- (*c*) Ankylosis in bad position (calcaneus or over 20 degrees plantar flexion); if inoperable, 25 per cent
- (*d*) Subastragalar ankylosis in good position, 7.5 per cent
- (*e*) Partial ankylosis of subastragalar joints (always painful), 17 to 25 per cent if inoperable
- (*f*) Loss of motion
  1. Dorsiflexion (valued at 12 per cent permanent total disability; useful arc 90 to 70 degrees)
  2. Plantar flexion (valued at 8 per cent permanent total disability; useful arc 90 to 125 degrees). Formula: The proportionate part of dorsiflexion (12 per cent) plus the proportionate part of plantar flexion (8 per cent) equals the disability in motion of the ankle (the proportionate loss of dorsiflexion is considered as that proportion of 12 per cent and added to the proportionate loss of plantar flexion, which is represented by a total value of 8 per cent

V. Foot
- (*a*) Loss of foot with loss of motion of ankle, 25 per cent permanent total disability
- (*b*) Amputation proximal to the heads of the metatarsals (loss of weight bearing), 25 per cent. In the authors' experience such amputations usually require rating as for amputations above the ankle or loss of motion of the ankle
- (*c*) Loss of metatarsals, rated as the proportionate loss of weight bearing (which if total is specified in paragraph two as 25 per cent)
- (*d*) Great toe
  1. Amputation at metatarsophalangeal joint, 5 per cent
  2. Amputation at interphalangeal joint, 2 per cent
  3. Loss of motion (hallux rigidus), 4 per cent
- (*e*) Other toes
  1. Total loss, 1 per cent
  2. Partial loss, 0.5 per cent
- (*f*) Ankylosis between tarsal bones, 5 per cent
- (*g*) Ankylosis of subastragaloid joint (astragalus and os calcis), 8 per cent
- (*h*) The "frozen foot," i. e., atrophied, ankylosed in practically all the joints, with lowered circulation, a tendency to trophic changes and usually pain, should be allowed the same disability as the total loss of the member, viz., 25 per cent

3. Permanent partial disability shall be valued as a percentage of permanent total disability.

4. Permanent disability should be based on a table of fixed ratings, modified by important variable factors. The most important of these are:

(*a*) *Age.*—A man of 60 is much more disabled by the loss of an arm than a man of 35. There are five distinct breaks in the line representing age:

1. From 15 to 25 years is the experimental age, when the average boy is learning his trade.

2. From 25 to 30 years shows a decided change; usually the man has learned a trade; his social status has been changed by marriage.

3. From 30 to 50 years is the greatest productive age. At 40 usually he starts on a decline. His trade is fixed, and he is hard to adapt to a new one, accentuating any disability.

4. From 50 to 60 years the aforementioned factors are even more accentuated.

5. At 60 years and above age is less important. The man is at the end of industrial activity.

(*b*) *Type of Occupation.*—There is a distinct and unique relation between the claimant's occupation and the amount of disability arising from a given injury. The United States Veterans' Bureau uses a most comprehensive and detailed table of occupations, with a variant ratio ranging from 1 to 9, the lightest occupation usually rating the lowest. The type of work must always be borne in mind. For instance, a seamstress working with thin silk must be able to grasp her materials firmly with the left hand. A musician with a disabled left hand can still play the cornet. Disabled persons are often able to do much heavier types of work while working for themselves—and, from the nature of things, resting whenever a painful spasm arises—than they could for an unsympathetic foreman who might drive them beyond the limit of their endurance. The type of light work that any individual can do is unfortunately not usually specified. This leaves such partially disabled persons at the mercy of the foreman who wishes to relieve his department of the burden of keeping crippled employees; and thus, in one of the cases I have in mind, light work for a partially disabled man with a crippled ankle consisted in carrying two pails full of cutting liquid at a time all day long up three flights of stairs, a task which nobody except one in the pink of health and strength could do.

(*c*) *Presence of Pain.*—Be it ever so slight, the presence of pain is a most disturbing factor and one extremely difficult to evaluate. In some regions, as the shoulder and the spine, the presence of pain can be estimated by the muscular spasm which accompanies painful motion; but pain in a neighboring joint absolutely destroys any values given to the fixed disability ratings of existing deformities. In partial ankylosis or fracture into or near a joint it is my belief that a stiff and painless joint is far preferable to a movable joint which produces pain. Tender scars or amputation stumps add 5 per cent to the fixed disability rating.

(*d*) *The Will to Work* (morale) *and Other Psychic Factors.*—The mental attitude of the patient greatly influences his ability to carry out the work which his disability, age and occupation should warrant his performing. Malingering and deliberate exaggeration must always be summarily condemned, but genuine psychoneurosis must at least be viewed in a sympathetic manner. Some states, the latest being Iowa and Nebraska, actually pay compensation for such conditions.[2] An examining physician must at all times be on his guard against the obvious fallacy of calling every hidden and unexplained condition a neurosis or exaggeration, and it is my opinion and constant practice never to make a diagnosis of neurosis until repeated examinations have fully demonstrated the lack of objective corroborative evidence of the actual existence of disability. Often actual disability of a minor grade and psychoneurosis coexist. The compensating board seeing only the cold, formal report cannot be expected to evaluate these conditions as can the observing examining physician.

2. Workmen's Compensation Acts: Compensation for Nervous and Mental Sequelae, J. A. M. A. **98:** 1216 (April 2) 1932.

(*e*) *Preexisting Disease or Disease Set Up as a Consequence of Injury.*—Preexisting disease which has been rendered active, painful or disabling by the injury, or disease which has resulted from the trauma, must always be given due consideration and is compensable in all state and federal jurisdictions except where specifically enjoined by legislative enactment. In this regard the United States Court of Appeals has decided as follows (*General Ins. Co.* v. *Dafferne*, 81 F. [2d] 179): "Claimant was entitled not only to compensation for disability directly caused by the accident but also for the total disability resulting from the aggravation of his preexisting ailments which prior to the operation had no disabling effects." For instance, tabetic arthropathy —Charcot joint—is sometimes seen after fractures, the first roentgenograms of which were entirely negative except for the fracture. Osteo-arthritis which had hitherto been painless and symptomless can be rendered painful and disabling. I, however, do not agree with the commonly expressed opinions of Coley and Geschickter that sarcoma of bone can arise from a single injury. Neither of these authors offers any proof of this claim beyond the history of an injury. One could readily understand how an infection such as tuberculosis might crop out of a locus minoris resistentiae from trauma; but how, for instance, a giant cell tumor deep in the interior of a condyle of a femur should rise from a single bruise which does not even break the tissues of the soft parts or disarrange the lamellae of the cortex is beyond my conception. My own experience contains several positive refutations of this theory, in that the tumors under suspicion were invariably secondary metastases from preexisting carcinoma, and autopsy showed widespread dissemination.

In the latest publication on this subject Ewing [3] of New York reviewed everything that has been published along these lines, and he came to the Scotch verdict of not proven. Leila Knox [4] also denied the possibility or probability of this.

(*f*) *Injury or Atrophy of Soft Parts.*—Permanent injury or atrophy of the soft parts, when due to direct injury or circulatory change, adds from 5 to 15 per cent to the loss of function.

(*g*) *Circulatory Changes and Swelling.*—Circulatory changes with chronic swellings which lead in great part to atrophy of bone (Sudeck's atrophy; acute transverse atrophy) and to pain and stiffness in the neighboring joints are not properly evaluated in the United States. The German insurance and compensating boards lay great stress on the presence of what is called in this country "traumatic tropho-edema," meaning "chronic swelling due to circulatory changes," and it has been my experience, which is well corroborated in the German literature, that this tropho-edema with swelling and stiffness of the joints may travel upward, so that an injury to the wrist, say Colles's fracture, finally results in a painful and stiff elbow and shoulder. This disability is usually recovered from, and, as in atrophy of bone, physiologic use aided by the application of modern pressure-suction apparatus is the best method of cure.

(*h*) *Injuries to Nerves and Tendons.*—Injuries to tendons are estimated according to resultant loss of function of the neighboring joints. Injuries to nerves give a combination of disabilities. These are estimated according to the loss of function in the joints involved, plus an estimated percentage for atrophy, trophic changes and pain.

TABLE 2.—*Percentages of Permanent Partial Disability at Various Ages*

Nature of Injury	Age, Years											
	15 and Under	20	25	30	35	40	45	50	55	60	65	70 and Over
Loss of												
Major arm at shoulder	40.0	42.5	45.0	50.0	52.5	55.0	60.0	65.0	72.5	80.0	82.5	85.0
Minor arm at shoulder	38.0	40.375	42.75	47.5	49.875	52.25	57.0	61.75	68.875	76.0	78.375	80.75
Major arm at or above elbow	34.0	36.125	38.25	42.5	44.625	46.75	51.0	55.25	61.625	68.0	70.125	72.25
Minor arm at or above elbow	32.3	34.3	36.3	40.375	42.4	44.4	48.45	52.49	58.54	64.6	66.61	68.64
Major hand at or above wrist	26.67	28.33	30.0	33.33	35.0	36.67	40.0	43.33	48.33	53.33	55.0	56.67
Minor hand at or above wrist	25.3	26.9	28.5	31.67	3.25	34.8	38.0	41.2	49.9	50.67	52.25	53.8
Thumb	8.0	8.5	9.0	10.0	0.5	11.0	12.0	13.0	14.5	16.0	16.5	17.0
Index finger	4.0	4.25	4.5	5.0	5.25	5.5	6.0	6.5	7.25	8.0	8.25	8.5
Middle finger	3.2	3.4	3.6	4.0	4.2	4.4	4.8	5.2	5.8	6.4	6.6	6.8
Ring finger	2.4	2.55	2.7	3.0	3.15	3.3	3.6	3.9	4.35	4.8	4.95	5.1
Little finger	2.4	2.55	2.7	3.0	3.15	3.3	3.6	3.9	4.35	4.8	4.95	5.1
Leg at hip	40.0	42.5	45.0	50.0	2.5	55.0	60.0	65.0	72.5	80.0	82.5	85.0
Leg at or above knee	34.0	36.125	38.25	42.5	4.625	46.75	51.0	55.25	61.625	68.0	70.125	72.25
Leg at or above ankle	20.0	21.25	22.5	25.0	6.25	27.5	30.0	32.5	36.25	40.0	41.25	42.5
Great toe	3.2	3.4	3.6	4.0	4.2	4.4	4.8	5.2	5.8	6.4	6.6	6.8
Other toes	0.8	0.85	0.9	1.0	1.05	1.1	1.2	1.3	1.45	1.6	1.65	1.7
Eye	16.0	17.0	18.0	20.0	1.0	22.0	24.0	26.0	29.0	32.0	33.0	34.0
Hearing, one ear	4.0	4.25	4.5	5.0	5.25	5.5	6.0	6.5	7.25	8.0	8.25	8.5
Hearing, both ears	26.67	28.33	30.0	33.33	35.0	36.67	40.0	43.33	48.33	53.33	55.0	56.67

(*i*) *Nonunion of Fractures.*—Ununited fractures rate as three fourths of an amputation at the site of nonunion, except at the patella and the hip, where they rate as 100 per cent. Flail joints rate as three fourths loss of the joint.

(*j*) *Multiple Injuries.*—Multiple injuries must be divided into two kinds: 1. Diverse disabilities occurring from the same trauma. These are to be computed in the same manner as are commercial discounts and not by merely adding the resulting disability values together. 2. Injuries occurring at different times. In this connection the lump sum and gross settlement plans of most states create an injustice for the insurer and, unless the terminology is carefully watched, many ludicrous situations will develop. For instance, a man receives compensation for the loss of one eye and then while at work loses the sight of his second eye, receiving by the same token compensation for the loss of two eyes. In other words, a two-eyed man is compensated for the loss of three eyes. However, if the plan recommended in this paper should be followed, this person would in the first instance have received compensation for the percentage of disability arising from the loss of the sight of one eye and finally compensation for the total disability resulting from the complete loss of vision.

3. Ewing, James: Modern Attitude Toward Traumatic Cancer, Bull. New York Acad. Med. **11**: 281 (May) 1935.
4. Knox, Leila, in Brahdy, Leopold, and Kahn, Samuel: Trauma and Disease, ed. 1, Philadelphia, Lea & Febiger, 1937.

ABSTRACT OF DISCUSSION

DR. R. W. HARBAUGH, San Francisco: The California Supreme Court has not defined what constitutes total and permanent disability in compensation cases. The California Industrial Accident Commission has the final duty of determining what is total and permanent disability, since the act says that the commission's decision shall be final on questions of fact. In California the standard rating for loss of the major arm at the shoulder is 60 per cent, and for loss of one leg at or above the knee, 50 per cent. California makes a distinction between major and minor in all disabilities of the upper extremities and takes into consideration the age and occupation of the injured workman. In the rating a laborer 40 years old is considered standard. If a man is less than 40 his rate of compensation decreases; if he is more than 40 it increases. If he is not a laborer but a carpenter, a structural iron worker, a musician or any other type of worker, then he gets more than the common laborer, who is the lowest in the scale. The ratings are made by a specially trained expert, who has the assistance and guidance of the commission's medical examiners and medical directors, and are based on a schedule for rating permanent disabilities adopted by the commission. Neurosis is recognized as a disability in California, but the measurement of the disability in terms of its permanent effects is still an unsolved problem. No hard and fast rule can be made for compensating swelling and edema. The ratings for atrophy and neural injury are not made solely on the anatomic disabilities but on the results of the anatomic changes. The California act provides that, "in case of aggravation of any disease existing prior to such injury, compensation shall be allowed only for such proportion of the disability due to the aggravation of such prior disease as may reasonably be attributed to the injury."

DR. EARL D. MCBRIDE, Oklahoma City: Physicians must stay with their fundamental training. They should not be biased or prejudiced or swayed by the monetary contentions of the claimant and respondent. They must stay within their own field if they are going to be on entirely safe ground. How then can a formula for evaluating permanent disability be phrased for physicians' use? I have studied this problem thoroughly, and it seems to me that the only sound, scientific basis of evaluating disability is extent of function. The patient should be studied—his anatomic characteristics and the extent of ankylosis and of whatever else may have happened to him clinically. Then the physician should say to himself "Now what can the man do with that part which is disabled?" not just "How does it differ from that same part when it was normal?" The amount of function and not the extent of anatomic change is the answer to the question of disability. Now what does function mean? If one stops to think a moment one can break that word down into a number of factors. One important factor would be quickness of action (how fast can this man work with this stiff arm?). Others would be endurance (how long can he work?), strength (how strong is he with the arm?) and security (how much confidence has he in his arm?). Also will his risk be increased or decreased as far as work is concerned? Can he pass an examination for employment? All these belong to the one word "function." Each one of those factors can be given a percentage value within 100 per cent, and if the case is analyzed according to how much each factor has depreciated the answer will be a percentage of disability based entirely on the physician's scientific analysis, clinical sense and good judgment. All the rest can be left to the jury and the courts and industrial commissions for final decision.

DR. LIONEL D. PRINCE, San Francisco: Before one can arrive at estimates of disability after injury for the purpose of standardization throughout the United States it will be necessary to have uniform compensation laws governing the proceedings in each state. As one reviews compensation in different states there will be found great variance in the waiting period, the amount of weekly indemnity and the sums awarded for permanent total disability and partial temporary disability. In considering the estimates of disability after injuries to bones and joints one must show equal fairness to the injured and to the insurance company. A procedure that will have to be standardized before uniform laws can be established is that of measuring joints. Frequently one examines reports by other physicians and is unable to understand their measurements of restricted motion. Some physicians in measuring angles use the ascending row of figures on the protractor; others use the descending row. Some start from different neutral points. A method of measurement should certainly be standardized. I agree with Dr. Stern that the presence of pain is most disturbing and extremely difficult to evaluate. Pain is one of the greatest single disabling factors and, as stated by Dr. Stern, destroys any values given to a fixed disability rating of existing deformity. A shoulder, wrist, hip, knee or ankle in which there is normal motion with pain is far more disabling than a painless stiff or partially stiff joint. Neurosis is compensable in this state. This, I think, will always be a more or less unsolved problem. Experience again counts for much in sifting the wheat from the chaff, but the problem is a real one, especially when definite disability is associated with neurosis, hysteria, purposeful exaggeration and malingering. The question of preexisting injury is extremely important. No one would want to deny a man compensation if some type of preexisting disease has been aggravated by an injury. The point is How many of these preexisting diseases are actually aggravated by injury? Frequently persons come in with arthritic backs after some trivial injury, and they attribute the disability to the injury. In private practice a large percentage of persons consult the physician because of painful backs without history of injury. From a working man one seldom, if ever, gets a history of a disability of the back which he does not attribute to his employment. The point of differentiation is a fine one and, I think, largely depends on the physician's interpretation.

DR. WALTER G. STERN, Cleveland: This subject is a much broader one than the estimation of injury for industrial compensation alone. I told the members that the new social security schemes are here to stay and cannot be taken away from the workman even for his own good. When the money for direct relief ran out in Cleveland last fall and the city was able to beg a little more money from government agencies who wanted the families to go off relief and the men to go to work on WPA projects, over 325 men previously unknown to the Federated Charities or the Dispensary Clearing House applied in two weeks to one of the larger dispensaries alone for certification that they could not go back to work because of diverse disabilities (chiefly backache). If the funds of the various social security agencies and the various insuring bodies are to be made a "grab bag" for any claimant, the organizations are not going to be financial successes. This will cut down the amount of compensation that the injured are able to receive and will increase the premium that the employee and the employer must pay, and thus the same final conditions will appear in this country that have appeared in other countries, notably Germany, owing to the failure of the social security schemes. The plan followed by Dr. McBride in his book, which I advise all interested in this subject to read, and outlined in his discussion does not really differ from mine in its final appraisal except that more of his factors are subjective and depend on uncontrollable attributes of employment which the general medical fraternity will hardly be able to evaluate. The conditions are now bad enough without having to throw in the factors of "security," "endurance," "prestige of normal physique" and the like, which are serious matters and which men of experience like Dr. McBride could accurately evaluate but the rank and file of practitioners could not. It is necessary to stick strictly to the medical facts of the case, just as in noncompensable disease. A man with a stiff elbow that he cannot move more than 30 degrees is just as badly disabled in California as he would be in Ohio. The courts must be ignored because they have confused this subject so badly that from day to day one hardly knows what new medical disease will be officially declared a traumatic surgical disability. Then too they have given different interpretations of what constitutes total disability for different ends: for civil suits, for war veterans' compensation, for industrial accident compensation, for ordinary liability insurance and even in criminal cases and those involving railroad employees' pensions.

SURGERY OF GENITO-URINARY MALIGNANT TUMORS

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Success in the surgical management of malignant tumors in any part of the body depends on early recognition and complete removal; furthermore, this is the only absolute cure for malignant conditions that is known at the present time. The application of this principle to malignant disease of the urinary tract has been especially difficult, owing to the commonly insidious onset of the disease and the impossibility of its discovery while sufficiently localized to permit of its entire elimination.

This is particularly true regarding malignant disease of the kidney. Here the earliest signs and symptoms may be long delayed in their onset, the cardinal symptoms (pain, tumor and hematuria) not being noticeable or recognized as serious until the growth is no longer confined to the kidney. The emphasis placed by urologists on the significance of painless hematuria is, however, beginning to bear fruit, and unquestionably a larger number of renal tumors are now being seen at an earlier stage of growth than was formerly the case; a second factor contributing to this result is the common employment of excretory urography.

Even with all the methods of diagnosis now available, the recognition of the presence of a renal tumor is often extremely difficult and may necessitate repeated investigations carried out at frequent intervals. The causes of filling defects to be noted in urograms, as well as distortions in the outline of the calices and renal pelvis, are many and varied and cannot always be differentiated with certainty. A blood clot in the kidney pelvis, a calculus of low density, spasm of the pelvis and calices, distortions incident to infection, tuberculosis and polycystic disease, renal torsion, displacement of the kidney, congenital anomalies and single cysts, abscess of the parenchyma or perinephric abscess, also extrarenal retroperitoneal tumors are all possibilities to be borne in mind when one is rendering an interpretation of films.

Much time and effort have been expended in attempts to classify renal tumors. From the standpoint of prognosis and possible reaction to irradiation, such a classification may be of interest and value. Scarcely any two authorities, however, agree on any one pathologic classification. The most important phase of the subject is the making of a diagnosis which will be sufficiently complete to lead to an exploration of the kidney, the one hope of cure resting on an early nephrectomy, a principle which applies to benign tumors as well.

With a diagnosis of renal tumor established there are two possible factors that may justify delay in exploring the kidney: The first is the question of employing irradiation to reduce the size of a large growth or possibly render an inoperable tumor operable (the preliminary employment of irradiation being routine in so-called Wilms tumors); the second factor is the presence of metastases. That irradiation has a field of usefulness in the treatment of renal tumors has been proved. Its preoperative use in reducing the size of renal tumors (through apparent destruction of thin-walled blood vessels, with the production of hemorrhagic infarcts which may in turn destroy areas of tumor tissue) has the effect of partial removal of the tumor. Tumor cells, however, have always been found adjacent to such areas of tissue destruction.

Areas of malignancy have been found in all kidneys removed for Wilms tumors subsequent to irradiation; it would seem to be the best judgment for all such kidneys to be removed after a thorough course of irradiation. Irradiation alone must be considered as a palliative method for the treatment of renal tumors. Its employment as a routine procedure preliminary to nephrectomy is hardly justifiable in the light of our present knowledge. By so doing valuable time may be lost, during which metastasis may take place. The value of irradiation after nephrectomy seems to be still in doubt.

While it may be said that nephrectomy is seldom justified in the presence of metastases, the question of a mistake in diagnosis might well arise. This is particularly true of metastases to the lungs, which cannot always be detected with certainty. Furthermore, in certain instances metastases to the lungs have been reported to have disappeared under irradiation, so that one should not proceed according to an arbitrary rule but consider each case individually. By refusing operation in all cases showing metastases, an occasional patient might be deprived of the only possible cure.

Tumors of the renal pelvis and ureter cannot be differentiated pathologically before operation. When examinations indicate the presence of such a tumor, nephro-ureterectomy should be carried out and the mucous membrane of the bladder about the ureteral orifice should be resected or destroyed by means of diathermy.

Preliminary to nephrectomy, it is often desirable to give a blood transfusion, a pronounced anemia frequently being present, sometimes caused by the presence of metastases which have not been diagnosed. In carrying out the operation it is most important to have as free an exposure of the kidney as possible. This may best be obtained by means of the transperitoneal route, the kidney pedicle being clearly exposed and ligated before the tumor is removed. With the retraction of the peritoneum, however, dilated, thin-walled vessels on the surface of the kidney are easily torn and the resultant hemorrhage may be difficult to control. In employing this route, lumbar drainage should be supplied by a puncture wound placed in the back. As a rule the lumbar route, especially when augmented by resection of the last rib or employment of a transverse incision with a prolongation upward in the midline anteriorly, will give sufficient exposure. If it is thought necessary to remove the ureter, the lumbar route is to be preferred; furthermore, in the instance of tumors of the renal pelvis the kidney seldom reaches large size. Injuries to the bowel, vena cava and pleura are possible during nephrectomy for renal tumor and are best avoided by employing a free exposure. Extension of the growth into the renal vein or vena cava has been noted.

There have been fifty-four renal malignant growths under treatment at St. Luke's Hospital during the past ten years. Of this number twenty-nine were diagnosed as hypernephroma, one being bilateral. In eighteen, metastases were present. Of eleven patients without metastases who were operated on, four are alive ten,

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five, three and two years after operation. There were fourteen patients with carcinoma of the kidney (seven showing metastasis). Of this group two are alive six and three years after operation. Of five patients with carcinoma of the renal pelvis, one involving the ureter, two patients are alive three and two years after operation. I have a third patient in the latter group alive twelve years after operation. Three patients with sarcoma of the kidney all died within two months. There were also two patients with adenoma, both alive, and one with epithelioma.

This brief summary of cases indicates (1) that the large majority of cases of malignant disease of the kidney are seen late in the disease, when metastases are present; (2) that, in the cases seen before metastases are present, nephrectomy offers a distinct hope for a cure. In one case in which nephrectomy was attempted and found impossible, irradiation reduced the growth to one-third the original size and I was able subsequently to remove the entire tumor. The pathologic diagnosis in this case was carcinoma of the kidney.

A greater difference of opinion exists regarding the treatment of bladder tumors than of any other type of malignant condition of the urinary tract. Before the advent of fulguration and irradiation, no treatment other than surgery was known. The end results from surgery were so poor that any new method of procedure was welcomed.

The common types of tumors of the bladder are papilloma, papillary carcinoma and infiltrating carcinoma; other types of malignant growths are so rare that they will not be considered in this brief discussion. While pathologists are not in entire agreement as regards the classification and gradation of malignant tumors of the bladder, Broder's gradation (based on the percentage of cells fully differentiated into adult forms) seems to be the most satisfactory one yet given. The question always arises as to whether the biopsy specimen represents the character of the entire tumor; with the tendency of so-called benign papillomas to recur, the recurrences often showing definite malignancy, it is a question whether apparently benign papillomas of the bladder should not be considered as grade 1 malignant growths.

That all tumors of the bladder should be thrown into definite classes, depending on the gradation of malignancy, and each class be treated as a routine, does not seem to be good judgment. The appearance of the growth, its position and size, mean much to the eye of the trained cystoscopist. The age and general condition of the patient and the question of metastases must also enter into the decision as to the line of procedure to be adopted in individual cases. All will agree that so-called benign papillomas or papillomas of a low grade of malignancy should be thoroughly and completely destroyed by fulguration. The resectoscope is often of great assistance in carrying out this procedure, especially when large and multiple papillomas are present. Equally important is a follow-up; cystoscopic examinations should be made at regular intervals for an indefinite length of time, the intervals becoming less frequent with the lapse of time should no recurrences appear. Recurrences should be recognized promptly and immediately destroyed.

Papillary carcinoma presents a different problem. Surgical resection has given good results in certain cases, while in others recurrences have occurred promptly. A definite pedicle, seemingly surrounded by an area of healthy bladder wall, when removed has often shown, on microscopic section, chains of cancer cells extending along the muscle bundles, even to the cut edge of the bladder mucosa. In other instances a supposedly pedunculated growth has proved to be the apex of a tumor, the broad base being situated in the outer layer of the bladder wall or in an extravesical mass of large size. Tumors are often multiple and are frequently situated in close proximity to a ureteral orifice, necessitating ureteral transplantation if the bladder wall is to be resected, a procedure which may result in a functionless kidney. With the advent of radium, the implantation of seeds into these growths or into the base of the pedicle after destroying the papilloma became a common practice. The difficulty of an even distribution of radiation following the introduction of seeds containing radium element or emanation, the destruction of intervening normal tissue, local irritation and burns resulting from its use, as well as the general toxemia that was produced, have resulted of late in its less frequent employment. Diathermy has been employed through an open bladder with seemingly satisfactory results in certain cases, and more recently transurethral resection has often proved to be a satisfactory method of removal of this type of growth. Within the past six years transurethral resection has been employed in eighteen cases of papillary carcinoma, and the results in these cases to date have been more satisfactory than those obtained by any other single method of treatment. The pedicle must be thoroughly destroyed; irradiation may be employed in conjunction with resection, and follow-ups are essential. Recurrences frequently present a lower degree of malignancy and often are more easily destroyed than was the original growth.

Infiltrating carcinoma of the bladder has been subjected to the same variety of procedures as has papillary carcinoma. In this type of tumor, especially when located in the trigon, the question of the advisability of a total cystectomy with deviation of the urinary stream will arise in an occasional case. This operation, while radical, must nevertheless be undertaken before the growth has extended beyond the bladder or metastasis has taken place. It will necessarily have a limited field of application.

Tumors of the bladder show such variations in structure, rapidity of growth and vulnerability that it is difficult to compare the efficacy of different methods of treatment. Irradiation in the form of radium or high voltage roentgen therapy may have a definite effect on certain papillomas, but such growths may also be readily destroyed by fulguration or removed with the resectoscope. Irradiation is frequently employed in cases considered hopeless in the light of other methods of treatment, yet infiltrating carcinomas are more or less definitely radioresistant. Certain tumors increase in size slowly, even if no treatment is applied, and such growths are undoubtedly those which seemingly respond well to various methods of treatment.

In reviewing 139 cases (thirty-one of which were reported pathologically as papillary carcinoma and 108 as carcinoma of the bladder) treated in St. Luke's Hospital during the past ten years, I found that one patient was alive five years after high voltage roentgen therapy only, five were alive after radium implantation two, three, four, six and in one instance seven years after treatment; four patients were alive five, four and three years after surgical resection; one patient was alive fifteen years after surgical resection and radium;

four were alive after fulguration (one of twenty, one of ten and two of eight years' standing) while patients are living the following number of years after transurethral resection of the growth: one six years, three five years, four four years, seven three years, four two years and three one year.

Twenty-two patients of the entire series presented extensive metastasis when first observed. Thirty-four patients are known to be alive three years or more since they were first seen. Excluding the twenty-two patients with metastases and inoperable conditions, 31.4 per cent are alive and well three years or more after onset.

There has been no question that the results obtained in cases of papillary carcinoma over a period of five years during which transurethral resection has been frequently employed have been better than those obtained by irradiation or surgical resection only. This has not precluded, however, the employment of any type of procedure or combination of therapy that seemed advisable in individual cases. More time must elapse before it will be possible to determine the number of actual cures as well as the lengthening of life that may be expected following such treatment. Obviously one cannot hope to remove entirely an infiltrating carcinoma involving the entire thickness of the bladder wall by transurethral resection; nor can one derive much encouragement from efforts to eliminate such growths by open operation or irradiation. A modified technic for applying irradiation, such as roentgen therapy to the open bladder, may in itself or in combination with surgery or resection prove to be a step forward. Many patients with malignant tumor of the bladder still come to us in the late stages of the disease, when all treatment must be palliative in nature; yet a diagnosis of tumor of the bladder is seldom difficult to make.

Rarely is the diagnosis of carcinoma of the prostate made at a stage of the disease sufficiently early to permit of removing the entire growth. Only by the removal of the entire prostate and its capsule can one effect a cure for prostatic cancer. Cancer may originate in association with hypertrophy; it may arise in the posterior lobe or in the periurethral glands. It is present in approximately 20 per cent of all cases of prostatism and is discovered on microscopic section in approximately 3 per cent of prostates removed for hypertrophy. Arising commonly in the posterior lobe, cancer of the prostate frequently invades the seminal vesicles by direct extension, often involving the neck of the bladder and becoming a sizable growth before retention or hematuria occurs. In other words, a sudden attack of retention or the appearance of blood at the end of urination may be the first indication of what on examination will prove to be a growth that has already involved the prostatic capsule and seminal vesicles, the gland then being hard, nodular and firmly fixed.

Cancer of the prostate is often slow in growing. Patients have been observed over long periods (in one instance twelve years) during which little change has taken place in the size of the growth and there has been no appreciable interference with urinary function. It is undoubtedly in this type of case that various methods of treatment have given encouragement as to the results obtained, from either surgery, irradiation or transurethral resection, or combinations of any or all of these procedures.

In 1936 I reviewed cases of carcinoma of the prostate observed over a period of twenty-five years and in which prostatectomy, cystostomy, irradiation and transurethral resection were the treatments used. At that time a series of sixty-three resections carried out on fifty-two patients during the previous four years were cited and the technic employed in transurethral resection was described. During the past two years, twenty-four additional patients have undergone this procedure for cancer of the prostate; in four instances carcinoma of the bladder was also found to be present and was completely removed by resection at the same time.

The results have continued to be such that except in the occasional rare case in which an entirely encapsulated growth may be completely removed or it may seem wise to employ irradiation, transurethral resection, by restoring bladder function even in the presence of metastases, has given more relief and for a longer period than has any other method of procedure employed up to the present time. High voltage roentgen therapy may be beneficial in relieving pain incident to metastasis.

Two patients treated with radium only have survived seventeen and fifteen years; after prostatectomy, two patients are alive fourteen and eleven years after operation, while of seventy-six who have had transurethral resections with no operative mortality thirty-nine are known to be alive and comparatively comfortable over a period of from one month to six years after operation.

SUMMARY

A malignant condition of the urinary tract, whether located in the kidney, ureter, bladder or prostate, can be cured only by its complete removal while still localized. This can be effected only through an early diagnosis, which may be difficult because of the late appearance of physical signs and symptoms suggesting its presence.

Irradiation in the instance of kidney tumors may be a valuable adjunct but does not take the place of surgery.

Nephrectomy carried out under satisfactory exposure and with as little traumatism as possible will result in a certain number of cures. Cancer of the kidney pelvis and ureter (the latter to be suspected in all instances of filling defects in the ureterogram) should be diagnosed early and a nephro-ureterectomy carried out.

Tumors of the bladder, while easily diagnosed, are often allowed to become extensive before being discovered. Fulguration and transurethral resection give excellent results in low grade papillomas and in certain cases of papillary carcinoma, while infiltrating carcinoma is often radioresistant, and the only surgery applicable may be a total cystectomy following a deviation of the urinary stream.

Cancer of the prostate is essentially a fatal disease. Rarely is its complete removal possible. As a rule when the diagnosis is made the disease has extended beyond the capsule, and one's efforts may best be expended in restoring urinary function, which may be accomplished with a minimum of risk to the patient by means of transurethral resection, it being borne in mind that most cancers of the prostate are slow in growing.

A certain amount of encouragement should be derived from the occasional cures obtained from radical surgery in all types of malignant conditions of the urinary tract; also from complete eradication of tumors of the bladder, in some instances by fulguration and by means of the resectoscope. Transurethral resection has proved to be a decided addition to our methods for treating

cancer of the prostate—at least to the extent of giving functional relief without mutilation.

The watchword should be "early diagnosis," with constant emphasis on the necessity of ascertaining the origin of red blood cells in the urine; for only through such means will one be able, in the light of our present knowledge, to substitute methods of cure for palliative treatment in the management of genito-urinary malignant tumors.

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ABSTRACT OF DISCUSSION

DR. GEORGE C. PRATHER, Boston: Regarding malignant tumors of the testis, less importance should be attached today to the hormonal diagnostic tests than was believed warranted three or four years ago, unless a quantitative report can be obtained from a dependable laboratory. It is to be hoped that further observations resulting in a more definite yardstick for measurement of the follicular changes which the hormone causes will eventually be a definite aid in diagnosis and prognosis. In the treatment of a testicular tumor I prefer preoperative fractional irradiation of the affected part and bony pelvis followed by orchidectomy, by the technic of ligating and bisecting the spermatic cord before delivering and removing the testicle. There are times, however, when all diagnostic methods may leave one uncertain as to whether the patient has a testicular tumor or other scrotal abnormality. In such an instance I hesitate to use radiation, even as a therapeutic test, preferring to inspect the testis through a gently made but generous incision in the cavity of the tunica vaginalis, which allows adequate exposure with a minimum of handling of the testicle, should the trouble be tumor. One has, of course, another choice when the preoperative diagnosis of testicular tumor is uncertain—that of performing orchidectomy after ligation of the cord. This, however, may lead occasionally to an unnecessary sacrifice of a valuable structure. It is agreed, I believe, that testicular biopsy should never be done except by orchidectomy. My lack of experience with Hinman's courageous operation precludes any remark. No doubt the greatest improvement in the percentage of five year cures in persons with malignant tumors of the renal cortex will, during the next few years, occur in children having the Wilms type of tumor. This success will be due in a great part to the miraculous recession in size caused by the fractional or Coutard type of irradiation preliminary to nephrectomy, a procedure now generally accepted. The death of many, if not all, tumor cells as the result of radiation in the kidney with Wilms tumor makes nephrectomy relatively safe, from the standpoint both of immediate mortality and of spread of malignancy during operation. Unfortunately the response of malignant tumors of the renal cortex in adults to preoperative roentgen treatment produces only moderate, if any, appreciable recession in size of the tumor, so that one is often faced with nephrectomy for a patient showing a large renal tumor with no demonstrable metastases. If my logic is correct in the technic of orchidectomy for malignant testis, one should do transperitoneal nephrectomy, ligating the renal pedicle before attempting to deliver the kidney. There are times, however, when a tumor originating on the anterior surface of the kidney close to the hilus causes delay or difficulty in exposing the pedicle. Exploration of a kidney where there is only a question of tumor should, I believe, be done through an extraperitoneal incision of the flank.

DR. CLARK M. JOHNSON, San Francisco: Dr. Bugbee has reviewed a subject to which a lifetime could be devoted. He has outlined the treatment of cancer of the kidney, bladder and prostate and indicated his preference. He has stressed the key to the only cure known for cancer—early diagnosis. He has not attempted to regale the members with cures due alone to irradiation or to radical surgical measures. I wish to emphasize the importance of the subject he has presented. In ten years at the University of California Hospital there were 4,592 admissions in the urologic service. A definite diagnosis of cancer of the genito-urinary system was made in 274 cases. Of this number many were reentries; I was unable to separate the reentries from new cases. The number of cases of cancer included only those in which the diagnosis was proved by a pathologic examination. However, the 6 per cent or more of cancer in a urologic service gives it importance. When I find that of the 274 patients with malignant growth only a small number are still alive, the number assumes added importance. The patients had the advantage of as good high voltage roentgen therapy with or without radical or palliative surgical measures as there is available, to my knowledge. The poor results, therefore, were due to late diagnosis, and results will be the same in a similar group of patients until there is available a real cure for cancer in all its stages or a more concerted effort is made by the whole profession and the public which will lead to earlier diagnosis. This is particularly true of cancer of the bladder; hence I have singled out seventy-six cases of that condition. These represent the worst possible results because only hospitalized patients are in this group. About 150 cases of papilloma of the bladder were observed, and a fair number of these were labeled by the pathologist as instances of papillary carcinoma or malignant papilloma from the biopsies. It was in this group of precancerous lesions or early cancer without deep infiltration that cure was obtained. With carcinoma of the bladder advanced enough to require hospitalization there was a history of hematuria and urinary symptoms of months or years before examination. Sixteen patients were lost track of. Of the other sixty, only four are known to be alive. All four underwent cystectomy and diversion of the urinary stream. Many of the others died of urosepsis, without definite evidence of recurrence of carcinoma. Too often the justifiable energetic treatment of carcinoma of the bladder is undertaken without enough regard for the upper part of the urinary tract, with resultant ureteral stenosis and death from uremia.

FACIAL DISFIGUREMENT AND PERSONALITY

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With the rapid advance of reconstruction surgery during the past decade in technic, in availability to the public and in the types of disfigurement that have been treated, new interest has developed in this field. The experience of surgeons has been, however, that the benefit derived is not always in keeping with the results. They have found patients who have benefited both in body and in mind but also patients who, although they have experienced very creditable surgical results, have remained unsatisfied and have shown that they are sick and maladjusted persons.

A study was undertaken of the personality of patients coming to the Graduate Hospital of the University of Pennsylvania for plastic repair of facial disfigurement under the direction of Dr. Robert H. Ivy and his associates. There has been a total of 312 such patients. In this study, patients with disfigurements of recent traumatic origin were not included, for the reason that the immediate reaction to an accident is determined by the existing personality. Only after from two to five years should one take as permanent the effect of facial change, because this time is necessary for the personality to accept and incorporate the new factor.

Twelve cases were taken as examples for detailed study. The study was carried out in the Graduate Hospital, usually during the postoperative period, when operation was performed and at the Institute of the Pennsylvania Hospital when the disfigurement was not suitable for surgical intervention or there was special psychiatric interest.

The patients were interviewed informally on from two to six occasions, each interview lasting from two to eight hours. They were not conscious of the reason for these interviews. After a general history had been obtained, the personality material was elicited in an informal manner; the latter was later incorporated into workable form, the outlines of Strecker and Appel being followed.

A brief summary of the twelve cases gives some indication of the contrasts on which their separation into three groups is justified:

CASE 1 (group 1).—A boy aged 13 had burns of the neck and face, with contracture, of ten years' duration. He was an athletic, intelligent, artistic boy in the tenth grade. His health had always been good, and he had a cheerful, happy, optimistic personality, was socially inclined and outgoing, possessed no inferiority complex and no self consciousness and was rather phlegmatic. He came from a demonstrative family, was rather close to his parents in affection and had no jealousies of his siblings. He accepted his handicap rather well and was objective about it.

CASE 2 (group 1).—A rather phlegmatic, pyknic girl aged 16 appeared at the clinic for repair of contractures of the neck and shoulder occasioned by a burn which she suffered at the age of 6 years. Her reason for wanting an operation was that she wanted "to get married and be better looking." There was no sense of inferiority, she stood pain well and her energy was quick and steady. She was rather cheerful, friendly and sociable, having no especial drives or ambitions. She was close to her mother and spoiled because of her burns. However, there was no jealousy of her siblings. Her amusements were outgoing. She admired her sister. Her interests were marriage and family. One suspected a low intellectual capacity. This girl had not been affected by her handicap, did not expect too much from operation and was expected to make a satisfactory adjustment after repair.

CASE 3 (group 1).—A man aged 29, an Assyrian, came to the clinic to have a long, redundant tip removed from his nose, saying "It keeps me from advancement in my work; my boss has told me so." He had a trade school education, had been in excellent health, lived with his family and had made a good social adjustment in spite of his congenital facial appearance. He had advanced in his trade and was friendly, outgoing, tactful, neat and efficient. He was affectionate and took close care of his mother and siblings. He was an artistic, social type, his ambitions were well within the realm of possibility and he dealt objectively with his handicap. He did not expect too much from operation.

CASE 4 (group 1).—A man aged 27 came to the clinic with hemiatrophy of the face and progressive ankylosis of the jaw, which began at the age of 7, after an infection. He wanted the operation so that he could eat. He was a cabinet maker, provided for a large family and had made a good social adjustment. There was no inferiority despite marked deformity. He was emotional, cheerful, optimistic and objective, he adapted well and had no more than average anxiety. He was decisive and neat and expected little from operation that could not be given. He had a healthy concept of his condition, and after operation the results were good.

CASE 5 (group 2).—A white woman aged 23 had had post-infective hemiatrophy of the face and skull with ankylosis of the jaw for seventeen years. She wanted an operation so that she "could become more acceptable to people and get a job." She had a tenth grade education, her health was poor as a child and she had been dependent on her family throughout her life. For the past ten years she had withdrawn into her home, keeping away from all social contacts. She was moody, explosive, childish and resentful, with marked likes and dislikes. Her ambition was to become a nurse in a home for the blind or with crippled children or to be a beauty operator. She expected operation to make her an average, acceptable face and was vindictive and depressed when she found that this could not be done. After operation she became quite a problem for a while because of her attempts to compensate.

CASE 6 (group 2).—A woman aged 24 came to the clinic for repair of a cleft palate and a harelip, on which there had been an unsuccessful attempt at repair ten years before. She came because of her "facial appearance." She had a business college education, although she refused to graduate because of a slighting remark made by a professor. Her health was good, although she was dependent, complained of pain and was easily hurt physically and emotionally. She fatigued easily and was irritable, tense and excitable, cynical and self conscious. She desired attention and was subborn and childish, with an egocentric, vindictive trend. Her family relationships were completely demanding and egocentric. She hated her mother and sisters because, she said, "They are so beautiful and don't realize what I go through." After repair of her harelip was successful, a hysterical paralysis of one leg and alleged phlebitis developed, and it was only with difficulty that she was discharged from the hospital. She very evidently was hiding behind her deficiency, and other psychoneurotic symptoms quickly developed to replace her harelip when it was repaired.

CASE 7 (group 2).—A pyknic German youth aged 23 came to the clinic for repair of a post-traumatic scar on the right side of the face with a contraction deformity of the nose and eyelid of five years' duration. He wanted the repair because he wished to get married. He had a tenth grade education, stood pain well and was self conscious, seclusive, irritable, embarrassed, reticent and somewhat suspicious. He projected much of his social trouble onto the accident and had no close emotional ties either at home or with friends. He felt that he had not received adequate restitution for his accident and was vindictive. He was prone to lay much of his financial and social difficulty to the deformity and was expected to react only moderately well to operation.

CASE 8 (group 2).—A man aged 41, who came to the clinic with a congenital saddle nose, desired repair so that he would "be a success in business and marital life." He was a photographer, his health had been good, he had marked feelings of inferiority concerning his facial appearance and on this placed the blame for his inability to make a good living in his chosen field and also for the marital infidelities of his wife. He was tense, envious, moody, irritable and unstable. Socially he was apologetic and withdrawing, undecisive and easily hurt. He was dominated by his wife and felt inferior to all about him. He felt definitely that his facial appearance was the cause of his business failure and expected repair of his nose to alleviate all his difficulties. He was not objective in his attitude toward operation.

CASE 9 (group 2).—A man aged 35, a Jew, asked for remodeling of his racial nose because his nose kept him "from getting a job or joining social clubs." He had had two years of college education and his health had been good, although he complained continually and felt markedly inferior to those about him. He fatigued easily and was indecisive, fearful and slow thinking. He came from a family background of strife, parental separation and parental domination. He was childish and immature in his attitude toward his family and his own importance. He had never had a job, had no ambitions or goals and was completely bound up in the problems of the moment. His was a completely inadequate personality. He blamed his racial heritage for his inability to find happiness. No operation was performed because of this quite evident rationalization.

CASE 10 (group 3).—A man aged 30, a German, with a post-traumatic asymmetry of the mandible, asked for repair so that he could "go out of the house in the daytime and not be laughed at." In reality, the examiner had to ask what the deformity was before it was noticeable. The patient had quit many jobs and had been unable to continue work until he got a job in a mine where he would not come in contact with other people. He was seclusive, antagonistic and resentful, blaming others for his misfortunes. He was dependent on his wife and jealous of his friends and relations. He was hypochondriacal and prone to blame his environment for his troubles. After operation there developed a transitory amaurosis, which responded to suggestion. He became demanding and antagonistic in the ward, although the surgical results were excellent. This man will probably remain a chore to the surgeon or to the medical staff.

CASE 11 (group 3).—A fair-skinned, retiring, reticent, Irish youth aged 19 came to the clinic for removal of a small, soft, postoperative scar at the hairline of the left brow. It had been present for four years. He said "It keeps me from making friends; people look at it and laugh and I am embarrassed." The deformity had to be pointed out to the examiner. The patient's father had been an alcohol addict, and his mother, who was tuberculous, had died when he was 10 years of age. He grew up in an atmosphere of constant strife and uncertainty and was adopted at the age of 13. He went into the navy "to become a man," was disappointed in his advancement and in the past year had become seclusive, unhappy and suspicious. He blamed the small scar for his inability to find social success. His was an introverted personality rationalized on the basis of a small scar. No operation was performed.

CASE 12 (group 3).—A girl aged 17 was operated on at the age of 13 for "lop ears," as she felt that they prevented her from entering social activities and making friends. Since the operation there had been a recurrence of physical and emotional upsets. She was withdrawing, asocial, egocentric, suspicious and immature. She hated her sisters and mother and had tried to kill them. She had no capacity for ideals or ambitions and was completely self indulgent and egocentric. A diagnosis of schizophrenia was made, and she was committed.

From a study of these cases we feel that persons with facial disfigurements can be divided into three main groups: Group 1, the superior group, consists of well adjusted persons (cases 1, 2, 3, 4). Group 2 consists of persons with recessive or inadequate personalities, who retreat behind the "handicap" and unconsciously use it as a defense (cases 5, 6, 7, 8). Group 3 consists of prepsychotic and psychotic persons, with whom the facial abnormality is the material, the factual point of focus, of a schizophrenic process (cases 9, 10, 11, 12).

In the first of these groups one finds moderately successful, well adjusted persons who have marked disfigurements and who wish repair purely for cosmetic reasons or for comfort and not as an answer to all their problems, financial, emotional and social. They do not expect too much of their improvement and have a logical concept of the outcome. They offer ideal material for obtaining successful results, both plastic and emotional.

A report in greater detail of case 4 illustrates well this type of patient:

An Italian cabinet maker had infantile paralysis at the age of 7 and an abscess at the age of 14, which produced hemiatrophy of the face and progressive ankylosis of the jaw. At the age of 20 he was able to open his mouth only half way. When he came to the clinic he could open it only 2 cm. He had felt no especial handicap from his facial appearance, was a leader in social activities, had succeeded in his trade, was happily married and was supporting a family of four. His only worry was the loss of time occasioned by the operation. He had accepted his facial deformity and adjusted himself well. He was excellent personality material and characteristic of the group in which one would expect the best plastic results.

The recessive, or inadequate, personality group is composed of those patients who, feeling a marked handicap because of their condition, have secluded themselves and altered all their desires, emotions and activities because of their facial appearance. They have become limited in their social scope, general knowledge and social experience. They tend to develop a jealous, hateful personality indicated by sarcasm, a cynical attitude, marked aggressive hates or loves, dislike of siblings or parents and active hate and envy, more or less repressed, for "normal people." These feelings may be repressed to below the conscious level. An exposing of them is a greater surprise to the patient than to the people in his environment. The ultimate result may be expressed as marked antisocial activity or sadistic desires. Because of or as part of the typical seclusive life these people lead, their emotional development remains at an egocentric, immature and childish level, making them selfish, self indulgent, self deifying, thoughtless of others, obstinate, and illogical in matters pertaining to their own comfort or activities. Their attitude is usually quite easily controlled by suggestion and tactful persuasion. Their immaturity makes them fearful, prone to panic states, suspicious and deceitful. It is the basis for their self consciousness, ideas of reference, easily hurt feelings and projection of their difficulties onto the environment.

The result of this immaturity and fear, which produce a vicious cycle, is often laid at the door of the facial disfigurement by the patient.

What is the result of the removal of this answer to his personality inadequacy, i. e. the surgical repair of the facial anomaly?

For years the scar, harelip or misshapen nose has been looked on as a handicap, and its importance in the social and emotional adjustment is unconsciously all embracing. It is the "hook" on which the patient has hung all inadequacies, all dissatisfactions, all procrastinations and all unpleasant duties of social life, and he has come to depend on it not only as a reasonable escape from competition but as a protection from social responsibility.

When one removes this factor by surgical repair, the patient is cast adrift from the more or less acceptable emotional protection it has offered and soon he finds, to his surprise and discomfort, that life is not all smooth sailing even for those with unblemished, "ordinary" faces. He is unprepared to cope with this situation without the support of a "handicap," and he may turn to the less simple, but similar, protection of the behavior patterns of neurasthenia, hysterical conversion, hypochondriasis or the acute anxiety states.

It is this group which forms the exasperating, disturbing chore for the surgeon who has obtained an excellent technical result. Such patients make the surgeon realize that his responsibility includes "the person" as well as the operative field. Because of this, psychiatric aspects must be considered by the surgeon in working for complete and satisfactory results. It is the duty of the psychiatric service to aid the surgeon in helping to spot such potential reactions.

Case 5, here presented in greater detail, is an example of this group:

An unmarried young woman had hemiatrophy of the face and skull to the left with resulting ankylosis of the jaw. This was occasioned by recurrent osteomyelitis at the age of 7 to 12. She went to the tenth grade in school and then quit and withdrew into her home because her facial appearance "made people laugh." She had had no social contact for the past ten years, and her admission to the hospital was the first time she had been away from home during her entire life. She said "I thought I would come to the hospital and go out with a beautiful face like every one else." After the first operation she realized that this would not happen, became depressed and threatened suicide in a childish fashion. She was stubborn, obstinate, sensitive and suspicious. She had quick swings of mood and anger and responded quickly to suggestion. Her ambitions were out of keeping with her possibilities, as she wished to be a doctor, a nurse or a beauty operator. She refused to admit that her facial deformity as well as her educational limitations would keep her from these occupations. She had met her difficulties by hiding behind her facial disfigurement, which she used as

a rationalization of her inability to make a social adjustment. We felt that with an intelligent and sympathetic program and facial reconstruction a fairly good result could be obtained.

A logical question arises at this point. Do all these persons with inadequate personalities fall into a psychopathologic state and become problems after the surgical experience? We think that "no" is the answer. There is the retiring, passive, apologetic person who finds his psychic adjustment through humility and forebearance and is everlastingly thankful for any interest or aid given or offered by his environment. He does not cause the surgeon trouble even if the surgical results are unsatisfactory.

The third group is composed of those persons who have a primary, or basic, personality inadequacy. They are unable to assimilate and digest the demands and restrictions of their environment or to measure up to their opportunities and in casting about for a plausible basis for rationalization come, by chance perhaps, on a minor defect, such as a mole, acne scar, freckles, a long lip or an unequal nostril. From this they build an all-inclusive rationalization of their difficulties, out of all proportion to the reality values of the deformity. Furthermore, there are conscious and unconscious meanings to those deformities or defects.

Any plastic or reconstruction procedure only serves to interrupt the rationalization process, and soon the resulting scar or some other trivial defect is seized on for continuation of the delusional and illusional construction, which is often frankly schizoid.

When such patients appear for surgical aid, one is wise to proceed with greatest caution, and it is suggested that physiologic function alone be used as the criterion for operative intervention. This criterion is offered because the emotional importance of the disfigurement is secondary to a basic prepsychotic personality and regardless of the technical success the procedure will serve only to diversify instead of to remove the expression of an incipient psychosis. Case 11 is a classic example of this group:

A youth had a small white scar on his forehead which was undetectable without close observation. He was tall, slender and asthenic, with many facial mannerisms, was reticent and emotionally unstable and seemed perplexed at times. He felt that this small scar was responsible for his inability to make a satisfactory social and occupational adjustment, and it had been the reason for his seclusiveness for the past two years. His mother, who was tuberculous, died when he was 10, after many years of strife with an alcoholic father, who deserted the children soon after her death. He was raised in a tuberculosis hospital and an orphanage and by foster parents. In the second year of high school he became seclusive and disinterested in social activities, his lessons became difficult and he had some change in personality, which he attributed to a small mole, which was removed by electrolysis. After about one year he transferred his rationalization from the mole to the resulting scar, where it remained to this time. He had joined the navy about two years before and was dissatisfied with his advancement. He was prone to blame the aforementioned scar for his difficulty in adjustment and was unable to accept any other explanation despite logic or reason. It is obvious that he was definitely in the early stages of schizophrenia and that operative procedure would only serve to precipitate a more active phase of his psychosis. No improvement of the basic condition could be attained by treatment of the presenting symptoms.

It is here logical to consider whether all the prepsychotic reactions are of the schizophrenic type. Other reactions were conspicuous by their absence in this study; perhaps they may be found later. The schizophrenic reaction is definitely the common and characteristic one.

In the cases available, the extroverted, affective personality types were absent, and practically all the members of the well adjusted group could be classed as outgoing types. This fact leads one to feel that either the extroverted, affective person adjusts to his facial deformities without surgical aid or that when he has an operation he offers the most adequate subject for aid from an emotional standpoint.

No attempt is made at this time to discuss the underlying psychobiology of the reactions observed, as prolonged study and contact are necessary for an understanding of them. This we hope to report in future communications.

It is our hope that the direction of attention to this fertile field will be productive of more satisfactory results for all concerned in this growing branch of surgery. The proper selection and preparation of the patient may at times be as helpful as the proper surgical technic and skill.

The question arises regarding how these types can be recognized by a busy surgeon. Experience must be the guide. In general, however, one must look at the patient as an integrated organism, in which the personality needs study as well as the somatic factors involved. We list herewith certain questions that might be kept in mind: 1. What was the personality prior to the disfigurement? 2. What was the patient's emotional status when he was first conscious of his disfigurement? 3. What part has the disfigurement played in formation of the present personality? 4. What will probably be the emotional effect of plastic removal of the facial defect?

These questions require only a general working concept of basic personality factors and mental mechanisms plus the judgment and common sense of the investigator. The cardinal requirement is an interest in the patient's makeup and from one to three hours of time, depending on the physician's ability and the patient's complexity. In this period if the patient is encouraged to talk of factors other than his illness, the aforementioned personality outline is used only as a guide (not as a rigid questionnaire) and the physician considers the effect, judgment, security and relative value in the patient's productions as well as their superficial content, as a rule an excellent estimation can be gained in a relatively short time.

If time or circumstance renders it impossible to make the necessary effort, an opinion of a psychiatrically trained consultant will not be amiss and will usually be welcomed by the patient. Such a consultation will often forestall an unpleasant, prolonged and thankless effort on the part of the surgeon.

SUMMARY

A consideration of the personality and emotional status of the patient seeking a facial operation is recommended in an attempt to diminish the number of emotional defects which hound the surgeon after good technical results have been obtained. This can be achieved by a better understanding of mental and personal mechanisms on the part of the plastic surgeon and can be further facilitated by a closer association of the plastic surgeon and the psychiatrist. An estimation of the personality by one trained in that field as well as in the field of general medicine is recommended at least until the surgeon has acquired an insight and a workable concept of what personality factors influence the total result from the patient's standpoint.

WHOOPING COUGH

NEW PHASES OF THE WORK ON IMMUNIZATION AND PROPHYLAXIS

L. W. SAUER, M.D.

EVANSTON, ILL.

The coccobacillus of Bordet and Gengou (Haemophilus pertussis) has now been accepted quite universally as the sole causative factor of whooping cough; a filtrable virus plays no role. This pathogen, first isolated with difficulty from the coughed up, glistening pearls of mucus, can now be recovered with relative ease on cough plates exposed during the catarrhal stage. With the proper technic it has been recovered post mortem from alveoli and bronchi. It is not found in any other respiratory disease; intimately exposed immune subjects rarely harbor it.

EXPERIMENTAL WHOOPING COUGH

Various groups of investigators have produced clinical whooping cough in young monkeys (ringtails, rhesus, chimpanzees) by nasal or intratracheal inoculation of recently isolated cultures. Furthermore, the paroxysmal cough, lymphocytosis and pathologic lesions were produced in monkeys inoculated with bacilli recovered from the finer bronchi of experimentally infected monkeys. To exclude any virus factor, Shibley [1] inoculated chimpanzees with a culture of H. pertussis that had been transplanted on suitable culture medium more than sixty times. Clinical whooping cough developed in the animals. In chick embryos inoculated with recently isolated cultures by Gallavan and Goodpasture,[2] pulmonary lesions developed microscopically similar to those found in human infection with whooping cough.

The human transmission experiment by the Macdonalds [3] brings strong evidence that a filtrable virus plays no etiologic role. Their four sons—two of them twins—aged 6, 8 and 9 years, all in good health, had not had whooping cough. Two of them had been vaccinated five months previously with a total dosage of 8 cc. of H. pertussis vaccine (1 cc. = 10,000 million organisms). The Chamberland L_3 candle filtrate of a recently isolated culture (half of the growth of the well seeded Petri dish, suspended in physiologic solution of sodium chloride, maintained at 37 C.) was instilled into the nose and throat of each of the four boys. Symptoms did not develop in any of the boys in eighteen days. A colony from the intact half of the refrigerated plate was suspended in physiologic solution of sodium chloride. Approximately 140 bacilli were instilled into the nose and throat of each. The two vaccinated volunteers remained free from symptoms. Their cough plates were repeatedly negative and their blood counts remained normal. The two boys who had received no vaccine began to cough in a week; in the course of several weeks they showed all the clinical signs and symptoms of whooping cough. Their cough plates were repeatedly positive (++++), the blood counts rose to 29,200 and 29,100 respectively; lymphocytosis was marked. The paroxysms and vomiting persisted for weeks. Complement fixations on the four boys were four plus positive. The vaccinated boys remained well, although in the closest contact with the patients throughout the course of the disease.

The diagnosis of whooping cough without adequate proof is often misleading. Typical whooping cough in a sibling, intimate contact with a child in the catarrhal stage, a typical paroxysm or whoop, a positive cough plate early in the disease, typical lymphocytosis or a positive complement fixation test later substantiates the diagnosis. The typical whoop may be absent in infants and adults. Persons who had the disease months or years previously may again cough in paroxysms, whoop and vomit during subsequent respiratory infections without expelling the bacillus. Occasionally the disease is contracted by children a second time, more frequently by intimately exposed adult attendants, especially mothers and grandmothers. Without adequate tests it may be difficult to differentiate atypical whooping cough from other coughs. A protracted, paroxysmal contagious cough (without lymphocytosis or whoop) due to catarrhal tracheobronchitis may simulate clinical whooping cough. The paroxysmal cough of distemper (snuffle infection) in young children (contracted from pet rabbits, puppies, cats or infected children) can be differentiated from whooping cough by early cough plates or subsequent complement fixation and agglutination tests.

While using the cough plate in the diagnosis of whooping cough, Eldering and Kendrick [4] repeatedly isolated from children with paroxysmal coughs a new bacillus (B. parapertussis) which resembled H. pertussis in some respects, was like B. bronchisepticus in other respects but had some characteristics common to neither. The colonies resembled those of H. pertussis so closely that the children were quarantined as whooping cough patients. Only on subculture and further study were the differences found. It is not yet known whether children vaccinated with potent whooping cough vaccine would be protected against infection with this bacillus.[5]

Bradford and Slavin [6] reported the isolation of ten atypical strains, by the cough plate method, from children with pertussis-like coughs. Eight had been regarded as H. pertussis until further study showed clearly that they constituted an atypical group. The atypical strain was isolated from two infants in a contagious disease hospital; they presented all the clinical features of moderately severe whooping cough. The white blood cell counts were 17,500 and 36,600 respectively. Six of the strains were isolated from patients with what seemed to be "typical" cases of whooping cough treated at home. At that time there was a decided increase in the incidence of whooping cough in the city (Rochester, N. Y.). Eight atypical strains were isolated in a series of 160 consecutive "positive" cough plates—about 5 per cent of the "positive" plates. The atypical strains darkened the medium and showed early pleomorphism. They too resembled B. bronchisepticus in some respects but not in others. Each atypical strain was strongly antigenic when injected into rabbits. They suggest that all whooping cough vaccine for immunization should include an atypical strain. (This would weaken the vaccine and would probably not be strong enough to protect against atypical strains.)

Read before the Detroit Pediatric Society, Oct. 5, 1938.
From the Evanston Hospital of Northwestern University Medical School.

1. Shibley, G. S.: Proc. Soc. Exper. Biol. & Med. **31**: 576 (Feb.) 1934.
2. Gallavan, Mae, and Goodpasture, E. W.: Am. J. Path. **13**: 927 (Nov.) 1937.
3. Macdonald, Hugh, and Macdonald, E. J.: J. Infect. Dis. **53**: 328 (Nov.-Dec.) 1933.
4. Eldering, Grace, and Kendrick, Pearl: J. Bact. **35**: 561 (June) 1938.
5. Since August 1935 Mrs. Eva Markley, my technician, isolated on five occasions only an atypical strain of H. pertussis on cough plates exposed to children reported as having whooping cough; one of these had had authorized H. pertussis vaccine.
6. Bradford, W. L., and Slavin, Betty: Am. J. Pub. Health **27**: 1277 (Dec.) 1937.

VACCINATION AGAINST WHOOPING COUGH

The efficacy of an antigen is usually interpreted in two ways: (*a*) by serologic tests—complement fixation and agglutination (antibody responses similar to those produced by the disease); (*b*) by the severity of the disease, if infection occurs. Because both possess sources of error, views on the efficacy of vaccine differ.[7] Complement fixation and agglutination tests do not actually prove the presence of immunity; without the injection of any antigen an appreciable number (more than 20 per cent, according to some epidemiologists) of exposed children who have not had whooping cough do not contract it when exposed; those who contract it show wide natural variations in severity.

The ultimate test of vaccine-conferred immunity is a comparison of results in similar groups of intimately exposed unvaccinated (control) and vaccinated susceptible persons in the same age range—preferably between 8 months and 3 years—the age period when the incidence of the disease is highest.

MUNICIPAL CONTROL OF WHOOPING COUGH

At the Evanston Health Department Whooping Cough Control Clinic, conducted semiannually since 1934,[8] a total of 1,377 infants and young children (average age about 9 months) have been vaccinated. To date, a total of ten of the vaccinated children contracted whooping cough more than three months after injection. For the decade ending in 1933 the average yearly city total of reported cases of whooping cough was 334. In 1936 the city total was ninety-one, the lowest yearly total in the history of the department of health. In one clinic child the disease developed shortly after vaccination; none of the remaining ninety patients in the city had received vaccine. In 1937 the city total was 131 cases, chiefly among the Negro children, whose parents had remained rather reluctant about whooping cough vaccination. Of twenty-seven vaccinated Negro children subsequently exposed to whooping cough in their unvaccinated siblings, mild pertussis developed in three whereas in twenty-four the disease did not develop.

Controlled Vaccinations with Authorized Haemophilus Pertussis Vaccine (Jan. 1, 1933, to Oct. 1, 1938), Age Range 6 Months to 4 Years*

Groups		Number	Contracted Whooping Cough
Private, from 1933	Unvaccinated (controls)	560	105
	Vaccinated	1,001	16
Evanston Department of Health from 1934	Unvaccinated (controls)	1,100	129
	Vaccinated	1,377	10
St. Vincent's (1935 epidemic)	Unvaccinated (controls)	70	52
	Vaccinated	75	6
Totals	Unvaccinated (controls)	1,730	286
	Vaccinated	2,453	32

* Since March 1, 1938 only "double strength" vaccine (1 cc. = 20,000 million organisms) has been used: total dosage from 80,000 to 100,000 million).

Since March 1938 both laboratories licensed by Northwestern University Medical School to make authorized H. pertussis vaccine for immunization have supplied us with so-called double strength vaccine (1 cc. = 20,000 million organisms). It will be available in the near future. Owing to the smaller volume required, the three weekly injections are given just under the skin in alternate arms. The total dosage for children under 2 years of age is 5 cc. (1, 2 and 2 cc. at weekly intervals). The total dosage for children over 2 years is 6 cc. (1, 2 and 3 cc. at weekly intervals). If desired, the injections may be given at intervals of two or three weeks. The first two injections are given in the deltoid regions; the third is given in the left triceps region.

FAILURE OF ANTIGEN TO CONFER PROTECTION

An antigen fails to elicit specific antibodies in sufficient amount for prolonged immunity if it does not contain a sufficient concentration of the essential immunizing substance, if the injected dosage is inadequate or if the time interval between injection and exposure is not sufficiently long. Children over 2 years of age require a somewhat larger total dosage. Failure may result from impotent vaccine (old cultures, denaturing effect of preservatives, inadequate refrigeration), insufficient dosage for age, error in administration (deep injection in place of just under the skin), inability to develop antibodies from the injected antigen (premature exposure, too young) or premature loss of immunity (improper spacing, intercurrent diseases).

REACTIONS [9]

Parents are forewarned that a transient local reaction (redness and tenderness) and a rise in temperature may follow an injection. Reactions usually subside within thirty-six hours. A local induration or subcutaneous nodule may persist for a week or more. Nothing should be applied locally. Injections are not given in the area of a previous diphtheria toxoid injection or smallpox vaccination.

COMPLEMENT FIXATION AND AGGLUTINATION TESTS

Complement fixation and agglutination tests, performed with recently isolated cultures, maintained on a suitable culture medium, are usually positive with serums collected after the height of the disease or after adequate vaccination with potent vaccine. Gundel, Keller and Schlüter [10] found that the complement fixation test remains negative in a very small proportion of patients with whooping cough—mostly infants who failed to produce antibodies and in whom the disease was often fatal. They found the antibody response after vaccination better when freshly isolated cultures rather than old laboratory strains were used. They proved the futility of the injection of vaccine during the paroxysmal stage.

Since 1934, Daughtry-Denmark [11] has used the test as a routine a month or more after the third injection of authorized vaccine. If fixation was not complete (four plus), an additional 3 cc. of authorized (or 1.5 cc. of "double strength") vaccine was given. Later on, if the retest did not show complete fixation, a final 3 cc. (or 1.5 cc. "double strength") vaccine was given. The Webb [12] modification of the complement fixation technic

7. This difference of opinion on the immunizing virtue of vaccine is augmented by the various ways in which vaccines have been made—from old stock strains or recently isolated cultures; some mediums contain blood, others do not; some vaccines are "washed," others are not "washed."

8. Sauer, L. W.: Inoculations Against Whooping Cough, J. A. M. A. **109:** 487 (Aug. 14) 1937.

9. When the heat-sterilized syringe is reused without resterilization, as is customary when more than one child is injected, the used needle should be cautiously replaced with a sterile one, without the tip of the syringe being touched. To avoid contamination of vaccine with resultant local infection, only the very end of the plunger should be touched as the syringe is being filled and discharged.

10. Gundel, M.; Keller, W., and Schlüter, Willy: Ztschr. f. Kinderh. **57:** 89, 1935. Schlüter, Willy: Ergeb. d. Hyg., Bakt., Immunitätsforsch. u. exper. Therap. **18:** 1, 1936.

11. Daughtry-Denmark, Leila: Studies in Whooping Cough, Am. J. Dis. Child. **52:** 587 (Sept.) 1936; Am. Acad. Pediat., Reg. 2, New Orleans, 1937.

12. Sauer, L. W., in Brennemann, Joseph: Practice of Pediatrics, 1939 (revision), Hagerstown, Md., W. F. Prior Company, vol. 2, chapter 34.

can be performed in any laboratory equipped to make Wassermann tests. At the Atlanta Whooping Cough Control Clinic a total of 600 children were tested after vaccination. Twenty-eight were subsequently directly exposed to whooping cough; none contracted it. During the same five years, 174 of 192 nonvaccinated (control) children of the same social group contracted whooping cough. If a complement fixation test is not performed, Daughtry-Denmark recommends a total of 7 cc. of "double strength" vaccine. She concludes: "If complement fixation is indicative of antibody response, a four-plus fixation test has definite significance."

Miller found that washing H. pertussis (phase I) vaccine with distilled water or with 0.85 per cent solution of sodium chloride removed a specific substance which could be flocculated by hyperimmune rabbit serum. He concluded that this constitutes grounds for the omission of washing in the preparation of vaccine.

TESTS FOR VACCINE POTENCY

Burnet and Timmins [13] produced a fatal pulmonary infection in anesthetized mice by nasal inoculation of living H. pertussis; mice previously vaccinated with potent vaccine withstood the lethal dose. They suggest the use of this test in the evaluation of vaccine used in immunization.

Powell and Jamieson [14] found that mice injected with three weekly doses of 0.1 cc. of authorized vaccine withstood, one month later, the lethal dose of starch-treated living bacilli. They were the first to establish quantitative differences in the immunizing effectiveness of pertussis antigen. Silverthorne and Frazer, and Silverthorne [14a] injected mice with the authorized pertussis vaccines, other fresh strain vaccine, stock strain vaccines and "antigens." Only mice vaccinated with the authorized and other fresh strain vaccines withstood subsequent intraperitoneal injections of lethal doses of mucin-treated living cultures. They suggested that vaccine for immunization should be so tested before release.

Park and Mishulow,[15] Shorr [16] and Blatt, Levin and Schapiro [17] gave whooping cough vaccine intradermally. Park and Mishulow believe that a better response occurs with a smaller volume of vaccine. Shorr abandoned the intracutaneous technic because "of the marked local reactions and the large number of injections necessary to give a total anywhere approaching the proposed dosage. The largest single injection given intracutaneously was 0.2 cc. and the total amount did not exceed 1 cc. in any child."

CUTANEOUS TEST

Gundel, Keller and Schlüter tested dilutions of H. pertussis endotoxin as a cutaneous test. It showed no specificity, nor was its necrotizing action neutralized by the addition of convalescent serum. Mishulow, Mowry and Scott obtained a toxic filtrate by growing the bacillus on horse blood-chocolate agar with 1 per cent horse serum-beef heart broth. The Shwartzman phenomenon was produced with the filtrate. Koplik neutralized the toxin with convalescent serum. Truschina, Pechlotzkaja and Murawjowa [18] prepared a toxin which seemed to possess immunizing properties. Addition of 0.2 per cent solution of formaldehyde rendered it less toxic; when injected into animals, the toxoid produced antibodies. Intradermal injection of diluted toxin in nonimmune children produced lesions resembling the Dick test. Their work has not yet been confirmed. Cruickshank and Freeman [19] isolated an antigenically active fraction from phase I bacilli. Tested in mice, it appeared to possess an immunizing potency equal to that of phase I vaccine. Miss Leonora Hambrecht and I produced whooping cough bacteriophage by growing young cultures of old strains in a concentrated fresh sewage bouillon filtrate which contained a small amount of defibrinated human blood. Lysis was transmitted in series, and platings made from such lysed tubes produced typical plaques.

Thompson [20] reviewed the work of others on a cutaneous test for whooping cough and tabulated his own observations on immune and nonimmune subjects with 0.1 cc. of authorized vaccine (undiluted and diluted 1:10) and an endotoxin (diluted 1:5 and 1:10). Bacterial hypersensitiveness (positive cutaneous test) appeared about the tenth day of illness, reached a peak during the course of the disease and then usually receded. In some it did not completely disappear. The test seemed to be valuable in determining the immune state of a person; also as a diagnostic aid in atypical or missed cases when the cough plate was negative. He did not determine whether the positive cutaneous reaction indicated sensitization or immunity.[21]

PROPHYLAXIS

Bordet discontinued the use of whooping cough antitoxin as a prophylactic or curative agent because its questionable value did not warrant the hazards of anaphylactic reactions, serum sickness and sensitization to horse serum. Although the organic damage caused by endotoxin produced by the invading bacilli during the disease is not counteracted by whooping cough antitoxin, Schlüter recently reported on the early use of a concentrated, more potent antitoxin, prepared by the injection of larger doses of toxic cultures. Toomey reported that the injection of whooping cough antiserum aggravated clinical symptoms.

CONVALESCENT SERUM

Degkwitz was probably the first to report favorable results with convalescent serum in infants and young children when injected in the incubation and early catarrhal stage. Bradford [22] recently reviewed the literature on convalescent serum and whole blood in whooping cough. He recommended 10 cc. of human convalescent serum or 20 cc. of immune adult blood before catarrhal symptoms appear. Meader [23] recom-

13. Burnet, F. M., and Timmins, Cecily: Brit. J. Exper. Path. **18:** 83 (April) 1937.
14. Powell, H. M., and Jamieson, W. A.: J. Immunol. **32:** 153 (Feb.) 1937.
14a. Silverthorne, Nelles, and Frazer, D. T.: Canad. M. A. J. **38:** 556 (June) 1938. Silverthorne, Nelles: Canad. Pub. Health J. **29:** 233 (May) 1938.
15. Mishulow, Lucy, cited by Park, W. H.: J. Pediat. **7:** 691 (Nov.) 1935.
16. Shorr, E. Y.: J. Pediat. **9:** 49 (July) 1836.
17. Blatt, M. L.; Levin, I. M., and Schapiro, I. E.: J. Pediat. **12:** 619 (May) 1938.
18. Truschina, N.; Pechlotzkaja, W., and Murawjowa, O.: Ztschr. f. Immunitätsforsch. **83:** 124, 1934. Cutaneous tests with their toxin, kindly sent to us, failed to differentiate immune from nonimmune children. Deterioration while in transit is probably the cause of our negative results.
19. Cruickshank, J. C., and Freeman, G. G.: Lancet **2:** 567 (Sept. 4) 1937.
20. Thompson, A. R.: J. Hyg. **38:** 104 (Jan.) 1938.
21. Dilution of authorized vaccine, also of the clear, supernatant liquid after prolonged centrifugation, often gave cutaneous reactions like those described by Thompson. When 0.1 cc. of authorized vaccine or its clear supernatant liquid after prolonged centrifugation, diluted (1:8) with 0.5 per cent phenol in 0.85 per cent saline solution was injected intracutaneously into the skin of the forearm after whooping cough, or several months after completion of vaccination against whooping cough, a local reaction that measured more than 10 mm. in diameter was frequently observed twenty-four hours later. Nonimmune persons usually showed a smaller or negative reaction.
22. Bradford, W. L.: Use of Convalescent Blood in Whooping Cough, Am. J. Dis. Child. **50:** 918 (Oct.) 1935.
23. Meader, F. M.: Prophylaxis of Whooping Cough, Am. J. Dis. Child. **53:** 760 (March) 1937.

mended the prompt injection of from 10 to 15 cc. of pooled convalescent serum within the first week after exposure. In 72 per cent of the exposed infants so treated whooping cough did not develop, whereas in 30 per cent of the exposed but not injected (control) infants in the same age group the disease did not develop. Bessau observed no advantage in convalescent serum, even when large amounts were injected early. Bordet holds that young infants are less susceptible to whooping cough because many possess, for the first few months, antibodies transmitted through the placenta from the immune mother.

Jundell injected parents, preferably those who had had whooping cough in childhood, with three doses of vaccine at intervals of three days. He reported good results with such "hyperimmune" convalescent serum when given in the incubation or early catarrhal stage. Because valuable time was lost by waiting, Kendrick [24] prepared hyperimmune serum by the injection of the Michigan whooping cough vaccine into donors. Such hyperimmune serum was injected into infants soon after exposure with apparent benefit.

LYOPHILE SERUM

McGuinness, Stokes and Mudd [25] pointed out that improved technical procedures for preservation, pooling and concentration of human serum facilitated the use of serum in the passive immunization of exposed infants. Pooled serums are preserved by drying in vacuo. The dry, yellow, porous material ("lyophile" serum) was redissolved in sterile distilled water just before use. It was usually injected in doubly concentrated form.

Twelve infants between 1 and 7 months of age, exposed for two weeks in a ward to an early case of whooping cough with a fatal outcome, were injected with lyophile serum on the twelfth day following the initial exposure. Eight received 10 cc. and four received 20 cc. Whooping cough did not develop in any of the twelve. For two days a child of 10 years was exposed to a sister with whooping cough; 20 cc. of the pooled adult serum was injected and whooping cough did not develop. Healthy adult donors who gave a history of whooping cough were injected with the routine course of authorized whooping cough vaccine; one full course of vaccine was given every four months. After four months the donors were repeatedly bled at varying intervals. Diluted lyophile whooping cough serum was injected into twelve children intimately and continuously exposed to siblings with whooping cough. Previous attacks of whooping cough could be definitely excluded. In six the disease did not develop; in three a cough developed which lasted for from ten days to two weeks but was not associated with a characteristic whoop; in the remaining three children typical but mild whooping cough developed. Fifteen patients with clinical whooping cough were treated. Five appeared improved and the other ten were not benefited. They concluded that lyophile serum was of prophylactic value for passive protection; [26] after the disease was active, its value was uncertain.

CONCLUSIONS

Whooping cough is caused by Haemophilus pertussis (coccobacillus of Bordet and Gengou); a filtrable virus plays no role.

Bacillus parapertussis (Eldering and Kendrick) causes a pertussis-like cough.

The newly recommended concentration of authorized H. pertussis vaccine (1 cc. = 20,000 million organisms) requires a smaller volume of vaccine for active immunization.

It is not yet known whether the frequently observed positive cutaneous test (after the disease, and after active immunization) is an allergic phenomenon or actual proof of immunity.

The present strongest laboratory evidence of vaccine-conferred immunity is a four-plus complement fixation test.

Passive immunity, according to various investigators, occurs when intimately exposed infants are promptly injected with convalescent or hyperimmune serum before the paroxysmal stage.

636 Church Street.

24. Kendrick, Pearl: J. Pediat. **9**: 117 (July) 1936.
25. McGuinness, A. C.; Stokes, Joseph, Jr., and Mudd, Stuart: J. Clin. Investigation **16**: 185 (March) 1937.
26. Since the benefit of passive immunization is temporary, children so injected should also be given the three customary injections of authorized vaccine for prolonged protection.

Clinical Notes, Suggestions and New Instruments

KALA-AZAR

DON R. MATHIESON, M.D., AND B. A. WATSON, M.D., MINNEAPOLIS

This case of kala-azar is reported because of the infrequent occurrence of this disease in the United States.

C. Y., a Chinese student aged 29, entered the United States from China Sept. 3, 1935. Prior to that time he had been engaged as a teacher and research worker in parasitology and entomology. He came to this country for graduate study at the University of Minnesota. His general health had always been good with the exception of several attacks of malaria.

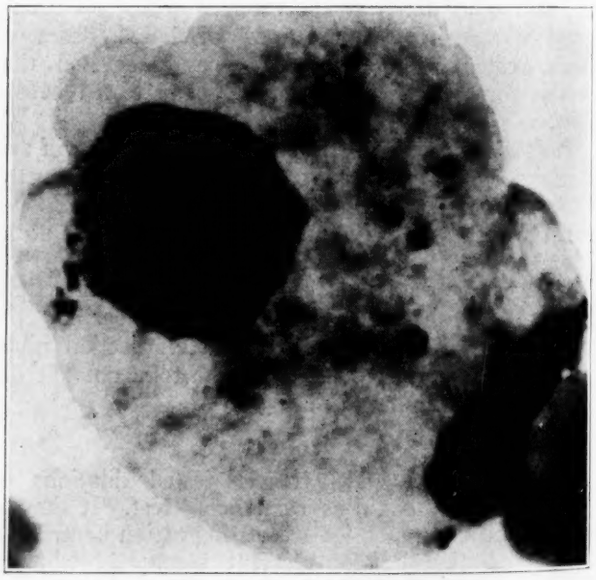

Fig. 1.—Smear showing Leishman-Donovan bodies.

On admission to the Students' Health Service the patient stated that about Dec. 15, 1935, he began to notice increased fatigue on moderate exertion, loss of appetite and slight dizziness. These symptoms increased in severity until December 21, when he was confined to bed, where he remained until the date of admission, Jan. 7, 1936. During this interval "chilly sensations and fever, nosebleeds, bleeding gums and loss of hair" were noted.

From the Medical Service of the Students' Health Service, University of Minnesota.
Dr. Watson is physician, Students' Health Service, and assistant professor of preventive medicine, University of Minnesota Medical School.

On physical examination at the time of admission it was noted that the patient was fairly well developed but slightly emaciated. He appeared weak and fatigued but not acutely ill. The temperature was 100.6 F., the pulse rate 100 and the respiratory rate 20. The hair was dull and dry. The skin was clear. The eyes, ears, nose and throat were normal. The breath was foul. The tongue was clean and moist. The gums of the maxilla were bluish purple. There was dried and caked blood on the alveolar margins of the upper incisor teeth. There was no cervical adenopathy. The thyroid was not palpable. The lung fields were clear. No rales or other abnormal sounds were made out. The heart appeared to be normal in size, shape and position. A soft systolic murmur was heard in the second left interspace. The blood pressure was 110 systolic, 54 diastolic. The abdomen was protuberant. The spleen was enlarged, extending below the umbilicus. It was firm and had a smooth edge. The liver was enlarged and palpable to about 3 cm. below the costal margin to the right of the midclavicular line. Neurologic examination gave negative results. The white blood cell count was 2,700, the red blood cell count 3,000,000 and the hemoglobin content 60 Sahli units. The differential blood count showed 60 per cent polymorphonuclears and 40 per cent lymphocytes. Culture of material from the nose and throat was negative.

An admission diagnosis was not made. The patient remained for observation and further study. A Mantoux test (1:100 dilution) was negative. A roentgenogram of the chest showed nothing abnormal. Because of the patient's history of recurrent attacks of malaria and the splenomegaly, numerous blood

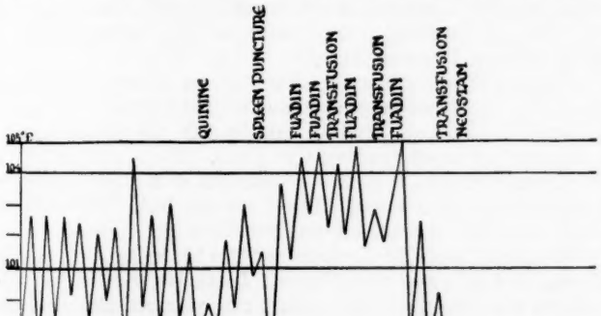

Fig. 2.—Response of the temperature to treatment.

smears were made and examined for malarial parasites. Though none were found, a course of quinine was administered definitely to rule out malaria. A total of 75 grains (4.8 Gm.) was given over a three day period. With the onset of toxic symptoms administration of the drug was discontinued. It had in no way altered the course of the illness. Because the patient had been doing experimental work with pathogenic filaria worms, a night specimen of blood was obtained and examined for filaria worms. None were found. Agglutination tests with the patient's serum and antigens of tularemia and undulant fever were negative. The possibility of kala-azar was suggested. A formol-gel test [1] was carried out. The result was strongly positive. Test of a control serum gave negative results. The patient had become weak and listless; afternoon temperatures were becoming higher; marked anemia (29 Sahli units of hemoglobin) had developed, and marked leukopenia, with a count of 1,800, was present. At this time (fifteen days after admission) a splenic puncture [2] was done. Smears were made which showed the presence of Leishman-Donovan bodies (fig. 1). Cultures were made on N. N. N. medium. The patient at this stage was acutely ill and hope for recovery was slight.

A course of treatment with antimony was immediately started. This consisted of intramuscular injections of fuadin [3] on alternate days. The patient was given a transfusion of 300 cc. of citrated blood every other day. After six days' treatment his condition became critical. His temperature was 105 F., his pulse rate 134 and his respiratory rate 28. There were petechiae over the abdomen, in the axilla, in the folds of the elbow, and on the right leg. There was also at this time a considerable accumulation of fluid in the peritoneal cavity. The platelet count was 20,430 per cubic millimeter. Up to this time a total of 125 mg. of trivalent antimony compound had been given. The day following the last injection the temperature dramatically dropped to normal and the patient's general appearance was surprisingly improved. After two days' interval treatment was resumed, with the use of stibamine glucoside (neostam) [4] in place of fuadin. A total of 2.06 Gm. was given in forty-three days. The only toxic manifestations noted were slight headache, urticaria and dry, nonproductive cough at the time of injection. These were well controlled by codeine and epinephrine. Figure 2 shows the response of the patient's temperature to various types of therapy.

At the time of discharge from the hospital the patient had made an apparently complete recovery. His blood picture was normal, the spleen had decreased in size and the liver was no longer palpable. The patient was able to resume his studies, and in August 1937 was granted a Ph.D. degree in parasitology.

1. Napier, L. E., and Muir, Ernest: Kala Azar: A Handbook for Students and Practitioners, New York, Oxford University Press, 1923.
2. Napier, L. E.: Technic of Spleen Puncture, Lancet **2**: 126 (July 18) 1936.
3. Sodium antimony III biscatechol-disulfonate of sodium.

THE PROTHROMBIN TIME OF "BANK BLOOD"

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The institution of "blood banks" in many of the larger hospitals throughout the country has often made the clinician entirely dependent on stored blood for transfusion. That such blood is not equivalent to freshly drawn blood in all respects is becoming increasingly apparent.

For several years it has been a routine procedure at the Hospital of the University of Pennsylvania, in the service of Dr. I. S. Ravdin, to transfuse jaundiced patients in the surgical wards both before and after operation and to combat any manifest hemorrhagic tendency with repeated transfusions. The work of Quick,[1] as well as that of Brinkhous, Smith and Warner [2] and that of Dam and Glavind,[3] has provided a rational basis for the belief that transfusion may diminish the hemorrhagic tendency in jaundice. They have shown that the hemorrhagic tendency of jaundice is associated with a prothrombin deficiency and that normal blood contains a great excess of prothrombin beyond the amount necessary for clotting. Because of this work it seemed important to determine the prothrombin content of blood stored in the blood bank, of the Hospital of the University of Pennsylvania at various intervals.

A modification of Quick's method [4] was employed. The technic recommended for taking samples could not be followed because the blood in question had already been citrated.

Two cubic centimeters of each flask of blood was transferred to a sterile test tube the morning after it was drawn. Half of this amount was removed; the plasma was separated by centrifugation and immediately tested for prothrombin time. The other half remained in the blood bank with the flask from which it was taken. The temperature was regulated to 4 C. In forty-two instances this sample was tested on the third day, in sixty-six instances on the seventh day and in twenty-six instances on the tenth day. The average prolongation of the prothrombin time was computed in percentage and the results are shown in the accompanying chart.

Using serial dilutions with plasma in which the prothrombin has been inactivated with aluminum hydroxide as described by Quick,[5] we have found that a 40 per cent prolongation in

4. Napier, L. E.: The Pentavalent Antimony Compounds in the Treatment of Kala Azar: Stibamine Glucoside (Neostam); an Analysis of the Treatment of Fifty-Seven Consecutive Cases, Indian J. M. Research **16**: 911-919 (April) 1929.

From the Department of Surgical Research, University of Pennsylvania School of Medicine, and the William Pepper Laboratory of the Hospital of the University of Pennsylvania.

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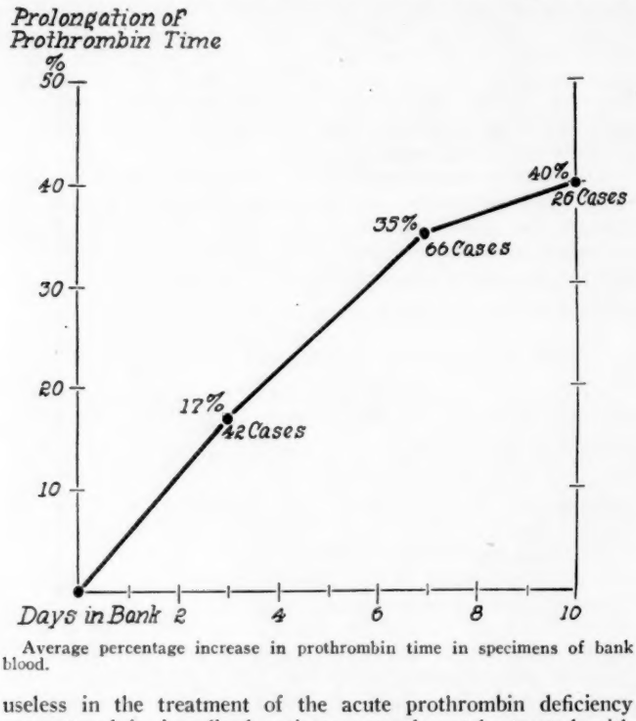
2. Brinkhous, K. M.; Smith, H. P., and Warner, E. D.: Am. J. M. Sc. **196**: 50 (July) 1938.
3. Dam, Henrik, and Glavind, Johannes: Lancet **1**: 720 (March 26) 1938.
4. Quick, A. J.: Am. J. Physiol. **114**: 282 (Jan.) 1936.
5. Quick, A. J.: J. Immunology **29**: 87 (Aug.) 1935.

prothrombin time indicates a decline to about 20 per cent of the original prothrombin concentration and that a 35 per cent prolongation in the time corresponds to a concentration of less than 25 per cent of the original prothrombin. The 17 per cent prolongation falls in a part of the curve in which small differences in the time represent large differences in the prothrombin concentration and represents a loss of over half of the prothrombin.

We conclude, on the basis of the Quick method, that blood that has been in the bank a week or more would be practically



Average percentage increase in prothrombin time in specimens of bank blood.

useless in the treatment of the acute prothrombin deficiency encountered in jaundiced patients not adequately treated with vitamin K and bile salts. Blood that has been in the bank three days would probably be of some slight value but it would be so inferior to freshly drawn blood that we recommend that only the latter be used when the transfusion is intended to combat the hemorrhagic tendency in jaundice.

METRAZOL THERAPY IN SCHIZOPHRENIA

REPORT OF A FATAL CASE WITH AUTOPSY

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There has been much enthusiasm recently for metrazol therapy of the functional psychoses. This is based on the dramatic remissions, on its ease of administration and on its adaptability to the treatment of large groups of patients. The literature, however, is still too meager to acquaint one with all the potential dangers attendant on the treatment. Meduna has treated more than 400 patients without a single death; in all, upward of 1,500 patients must have received metrazol therapy.[1] Severe headache, nausea and vomiting, fractures and dislocations, and many minor complications are common, but to date only three fatal cases have been reported. We record in detail, with autopsy, a case under metrazol therapy which terminated fatally.

REPORT OF CASE

History.—D. G., a white man aged 24, since June 1936 had complained of nervousness, weakness, trembling, pains in the head, back and abdomen and a subjective sensation of high blood pressure. The latter symptom was associated with a feeling of hot fluid running up his spine. Following two previous periods of hospitalization he was committed to the Springfield State Hospital, Dec. 8, 1937. Here he was seclusive, preoccupied and retarded; he believed that people pursued him and that voices cursed him and called him obscene names. He held fixed positions and was often mute. Other than measles and mumps and a tonsillectomy in childhood he had had no significant illnesses. One sister died of "meningitis of the brain" at the age of 8, but otherwise the family history was noncontributory.

Examination.—Physical Status: The patient was tall and of athletic build. The heart showed no clinical enlargement, rhythm was regular and there were no adventitious sounds. The blood pressure was 120 systolic, 84 diastolic. The lungs were normal. Neurologic and eyeground examinations were negative. Other than poor dental hygiene and a relaxed right inguinal ring, no physical abnormalities were noted.

Laboratory Studies: On admission the red blood cell count was 4,220,000, hemoglobin content 86 per cent, and white blood cell count 8,200 with a normal differential. Repeated urinalyses were negative. Blood chemistry, including dextrose, nonprotein nitrogen and uric acid, was within normal limits. Examination of the spinal fluid was negative, as were Wassermann reactions of the blood and spinal fluid. These studies and physical examinations, repeated immediately before institution of metrazol therapy, showed no essential change.

The clinical diagnosis was schizophrenia of the catatonic type.

Treatment.—Metrazol therapy was instituted Feb. 22, 1938. Three cc. of a 10 per cent solution of metrazol was given intravenously. Thirty seconds after the injection the patient gasped and there were blinking of the eyelids, dilatation of the pupils, flushing of the face and an increase in the pulse rate. Other than a few irregular movements, no convulsion occurred. The following day he was preoccupied and retarded, there was some twitching of the facial muscles, and he spoke of the treatment being "blurry, like electricity."

February 26, 4 cc. of metrazol was given. The patient became tense but showed no other reaction. Again he had the sensation of electricity and was slightly nauseated in the afternoon.

March 1, 5 cc. of metrazol was given. Ten seconds after the injection there was a sudden contraction of the body with the legs and shoulders raised stiffly from the bed. Without preliminary clonic movements an immediate tonic spasm set in, which was followed by clonic movements becoming progressively slower and of greater amplitude. Immediately after the convulsion the patient became restless and appeared fearful of the examiner. He showed flexibilitas cerea for five minutes after the convulsion. In ten minutes he recognized the physician.

March 5 with 5 cc. of metrazol the patient reacted with the usual clonic-tonic-clonic metrazol convulsion. Again he seemed anxious and frightened afterward. The following day he complained of headache and nausea, which persisted at intervals for three days; treatment was omitted March 8.

March 15 with 5 cc. of metrazol the patient reacted again with the usual convulsion, with a prolonged tonic and terminal clonic phase. A short series of clonic movements occurred a few seconds after the cessation of the convulsive seizure. The pupils were fixed and dilated, and there was conjugate deviation of the eyes to the left. He again showed flexibilitas cerea. In fifteen minutes he was able to respond and expressed hallucinations.

March 19, 5 cc. of metrazol was given. An atypical convulsion followed. Immediately after the injection a few irregular clonic convulsive movements occurred, most marked on the right side. Intense motor activity was present for a very short while and the patient tossed about on the bed. The pupils were dilated and remained fixed. The face, showing alternate pallor and flushing finally remained pallid. The irregular convulsive movements were present for two minutes and became rapidly weaker and finally the body relaxed. The pulse became weaker, was imperceptible at the wrist, and finally heart sounds became inaudible. Irregular respirations ceased. There was no cyanosis. Caffeine with sodium benzoate was administered intravenously, and artificial respiration was immediately instituted. Within three minutes 1 cc. of epinephrine was injected intracardially but heart sounds did not reappear; the patient could not be revived.

Pathologic Examination.—Autopsy was performed five hours after death. All the organs of the body were intensely congested. The heart weighed 315 Gm.; it was large and flabby

1. Cook, L. C.: Cardiazol Convulsion Therapy in Schizophrenia, Proc. Roy. Soc. Med. **31**: 4 (April) 1938.

and filled with large quantities of blood. There were numerous, slightly raised fibrous nodules scattered through each of the cusps of the mitral valve, which was moderately thickened but not fixed. There was very slight ventricular hypertrophy. The brain was enlarged, edematous and remarkably congested but showed no other gross abnormalities.

The nodules in the mitral valve consisted of fibrous tissue with hyalinization and some scattered deposits of calcium. Similar scarring and deposits extended inward into and about the muscle bundles, replacing small areas of the latter with fibrous tissue. Small deposits of cholesterol were evident in parts of the valve. None of the other valves were involved.

The pleurae evidenced markedly congested blood vessels, as did the medium sized and small blood vessels of the lungs. The alveolar capillaries, however, were devoid of blood. Many small sections of the lung showed collapsed alveoli; other sections showed edema or extravasation of red blood cells into the alveoli.

The sinuses of the spleen were enormously distended with blood. The liver cells were swollen and the sinuses contained considerable blood. Here also the vessels were markedly congested. Moderate round cell infiltration was present in the periportal area, with lymphocytes, fibroblasts and occasional plasma cells. The kidneys and adrenals showed the same congestion but no other abnormalities.

The microscopic sections of the brain were prepared in the Neurological Laboratory of the Henry Phipps Psychiatric Clinic and the slides were studied by Dr. Ellis Margolin. The leptomeninges showed no thickening and appeared normal. There was no distortion of the normal architecture of the brain. No gross or petechial hemorrhages were evident, and there were no scars or areas of softening. The blood vessels showed no pathologic changes but were markedly congested with blood. The individual nerve cells showed no abnormalities.

The diagnosis was chronic endocarditis, pulmonary edema and acute cardiac dilatation. The probable cause of death was the toxic effect of a pharmacologic agent on a pathologically impaired heart.

COMMENT

On the sixth treatment with metrazol a man aged 24, whose physical and laboratory examinations were negative, suddenly died. The morbid anatomy showed marked congestion of all the organs and a preexistent endocarditis. Except for the latter, the changes were essentially the same as those described by de Morsier and his associates [2] in their studies of a rabbit dying during a metrazol convulsion. No specific lesion was found at autopsy and the animal was apparently pushed beyond its physiologic limit of endurance.

The literature to date, as far as we can ascertain, reports three deaths in association with metrazol therapy. In all three cases a preexisting pathologic condition was present: aortic disease in one,[3] bilateral hypernephroma and goiter in the second, and pulmonary embolism and pelvic thrombophlebitis in the third.[4] In our own case a clinically asymptomatic and unsuspected chronic endocarditis was the underlying pathologic lesion. Other than the two fatalities presenting cardiac disease (Angyal and Gyárfás and our own), Goldstein and his associates [5] mention the occurrence of cardiovascular collapse in one of their patients. From our experience with metrazol in a case with a minimal heart lesion we feel that it is not as innocuous as is generally supposed. To keep the mortality rate at a minimum, thorough physical examination and routine laboratory studies must be supplemented, as Low and his associates [6] suggest, by basal metabolic tests, x-ray examination of the chest and electrocardiograms.

Springfield State Hospital.

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3. von Angyal, L., and Gyárfás, K.: Ueber die Cardiazolkrampfbehandlung der Schizophrenie, Arch. f. Psychiat. **106:** 1, 1936.

4. Briner, O.: Ergebnisse der Konvulsionstherapie an der Psychiatrischen Klinik in Bern, Schweiz. Arch. f. Neurol. u. Psychiat. (supp.) **39:** 118, 1937.

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Special Clinical Article

THE PROGNOSIS OF SYPHILIS

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In one of a series of lectures in therapeutics delivered in this country in 1933 Dr. Francis Fraser [1] of Saint Bartholomew Hospital, London, said:

> So long as there is no anxiety medical advice is not sought, and when fears arise they may not be expressed, and are often scarcely realized, but it is well that the physician should appreciate that fear is present and that it is no less real because it is not confessed. What the patient is really saying is "What does this symptom or this loss of efficiency mean to me, to my future?" and "Can you make me well?" The duty of the physician is then clear; he must endeavor to answer these questions, and the answer to the first is dependent on the answer to the second. The answer to the first question, or the prognosis, cannot be given unless the disease process present is known, and the stage in the process that has already been reached; and the value of any curative treatment available must be weighed.

It is the purpose of this paper to bring together certain data concerning the prognosis of the disease syphilis in its natural, untreated state and to assess in the light of these data the value to the patient of modern treatment. My consideration of the problem then is restricted in the main to the disease from the point of view of the individual and not of the public health.

ASYMPTOMATIC INFECTION

Although one is accustomed to think that the establishment of syphilitic infection is heralded by the development of chancre at the site of inoculation, it is evident that this does not always occur. Indeed it seems probable that a considerable number of persons acquire syphilis without ever exhibiting signs or experiencing symptoms of the acute stage of the infection. What mechanism operates to bring about the suppression of visible reactivity to infection is entirely unknown. Certain facts, however, are of interest in this connection and may be of importance.

The Inoculum.—The quantity of the inoculum may play a part. Asymptomatic infection may be induced in the rabbit by decreasing the amount of the inoculum to a point where demonstrable lesions do not occur. In 1934 it was demonstrated that in order to induce experimental infection more than a few organisms are required.[2] In recent unreported experiments Vryonis and I have been unable to produce lesions in rabbits with inoculums containing less than 30,000 spirochetes.[3] Nevertheless, under such circumstances infection can be proved to have become established. In the human disease there is evidence in the form of asymptomatic infection that an analogous state of affairs may exist.[4]

From the Department of Medicine, Vanderbilt University School of Medicine.

Read in the Medical Division of the General Scientific Meetings at the Eighty-Ninth Annual Session of the American Medical Association, San Francisco, June 14, 1938.

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Age.—Fournier [5] pointed out in 1899 that acquired syphilitic infection is prone to be more violent or florid in its manifestations in either prepubescent or elderly patients than in young adults or middle-aged persons. Although in agreement, I have no evidence to support this contention other than clinical impressions. Certainly congenital syphilitic infection in infants is commonly fatal,[6] and the incidence of asymptomatic congenital syphilis is much lower than that of asymptomatic acquired syphilis. Moore [7] emphasized that the chief difference between the manifestations of early congenital syphilis and those of early acquired syphilis in the adult is quantitative and not qualitative. The visible manifestations in both instances are of the type designated secondary. The infant exhibits, besides, impressive clinical evidence of visceral involvement and toxemia. It seems probable then that the very young have not developed, and the very old may lose, the capacity to suppress acute manifestations of infection.

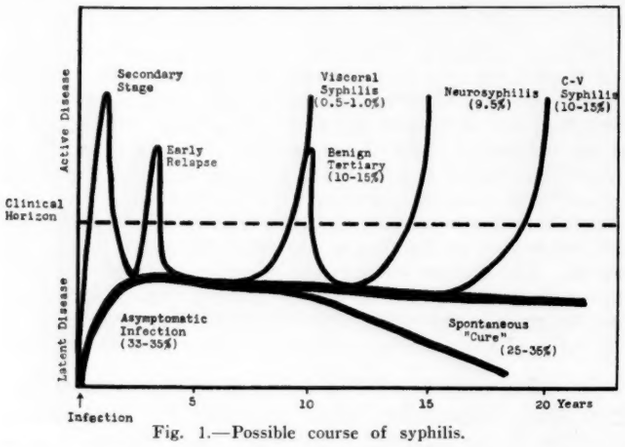

Fig. 1.—Possible course of syphilis.

Sex.—There seems little doubt that women experience asymptomatic infection quite frequently, indeed twice as frequently as men.[8] Certainly not more than one half of women with late syphilis can give a history at all suggestive of acute syphilis. This difference in the incidence or recognition of acute manifestations of syphilis in men and in women is also impressively reflected in clinic attendance. Men with acute syphilis greatly outnumber women. At the Vanderbilt University Hospital [9] 73.6 per cent of 497 patients with chancre were men and 26.4 per cent were women. Of 1,319 patients with mixed primary and secondary syphilis 62.4 per cent were men and 37.6 per cent women. This difference between the two sexes as to the clinical manifestations of acute syphilis is even more impressive when it is pointed out that among patients with latent and chronic, active syphilis females are slightly in the ascendancy in our clinic (53 per cent of 3,242 patients).

Pregnancy.—Moore [10] has shown that the production of asymptomatic infection is favored by pregnancy. Not only does pregnancy tend to suppress the usual manifestations of acute syphilis, but apparently it also helps to protect the woman against the serious late sequelae of syphilitic infection.

The importance of detecting asymptomatic infection is great. Since its presence is not suggested by either clinical signs or symptoms, it tends to remain unrecognized, and indeed can be recognized only by serologic tests. Thus there exists in the population a large unrecognized reservoir of syphilis, potentially capable of spreading infection by the development of mucocutaneous lesions and in the case of women by the transmission of the infection to offspring. Furthermore, the threat of subsequent development of cardiovascular syphilis or neurosyphilis would seem to be great in asymptomatic syphilis. At least half of the patients who acquire these serious, often lethal, sequelae have had asymptomatic infection.[8]

SYMPTOMATIC INFECTION

Figure 1 illustrates the course of symptomatic syphilis. After the virus has penetrated the skin or mucous membrane, generalized infection rapidly develops. In rabbits it has been demonstrated that it requires only a few days for the organisms to traverse the barrier interposed by the lymphatic system and gain access to the blood stream.[11] Thus in animals it is established that generalized infection occurs before the chancre develops at the site of inoculation. This is known to be the case also in the human disease, since blood obtained from a transfusion donor in the prechancre (incubation) stage of syphilis has induced syphilis d'emblée in the transfusion recipient.[12] In acquired syphilis there is an interval of approximately three weeks before the local lesion develops at the site of inoculation and nine weeks before the mucocutaneous, ocular or meningeal manifestations of generalized infection become apparent. All these lesions represent tissue reactions to Spirochaeta pallida, which at this period in the disease is disseminated throughout the body. The chancre heals before, during or after the appearance of the secondary lesions, and in the course of a few days, weeks or months there occurs spontaneous resolution of the latter. As healing occurs, dark field examinations of surface lesions indicate that widespread destruction of spirochetes is taking place. Massive generalized infection no longer exists. The disease thus becomes converted from a general infection to a focal one. Latent syphilis without signs or symptoms becomes established.

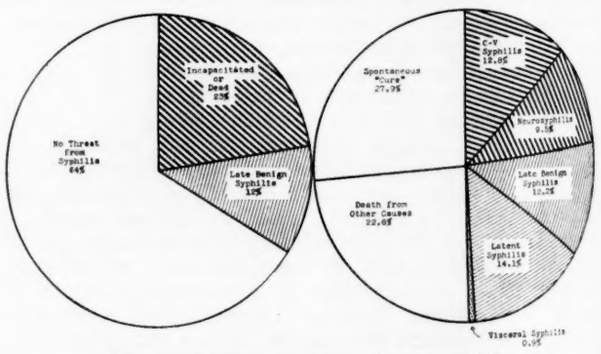

Fig. 2.—Outcome of untreated acute syphilis.

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In this process the infected person has acquired the capacity for converting an active, generalized spirochetal infection with bacteremia into an inactive, focal infection, and this through the operation of factors of resistance native to the body. The mechanism of this immunity is not known. It develops during the stage of the early lesions of the skin and mucous membrane, and one is therefore inclined to emphasize the possible role played by these structures. This is known: While the immunity is effective and prevents death from an overwhelming spirochetal infection, such as occurs commonly in intra-uterine life, it cannot be proved to be totally effective in the sense of producing biologic cure. Spontaneous biologic cure of syphilis, with eradication of the last spirochete from the body, does not occur so far as is known. Nevertheless it would seem that the experience of a brisk reaction to acute infection with lesions of the skin and mucous membrane conveys a certain degree of protection against the late manifestations of the disease. It has been pointed out that the incidence of the late sequelae of syphilis is greater in persons whose histories indicate asymptomatic acute syphilis than in those who had as a result of the infection a chancre and rash. Moreover, the optimal time for treating seropositive acute syphilis, from the point of view of therapeutic results in individual patients, seems to be after the development and at least partial resolution of the frank secondary stage of the disease.[13] However this may be, in acute syphilis there is a limiting process which results in inactive infection, and this is brought about by natural immune forces. If these forces are potent, latency is permanent and reversals into the acute phase of the infection do not occur. If they are not potent, latency is not permanent and recurrences of the acute mucocutaneous lesions take place for months and even years. The highly infectious stage of the disease is thus prolonged.

Latent syphilis is an inactive, focal infection. The evolution of the disease now occurs in terms of years and decades, not of weeks or months, as in the acute period of the infection. The reactivity of the tissues of the body has become changed. When lesions develop they are no longer acute and actively inflammatory, as in the early phase of the infection, but are slowly proliferative and destructive. After a decade or more of symptomatic quiescence, progression of the disease from the latent state to active chronic infection may take place; manifestations of progressive changes in the vascular and central nervous systems begin to make their appearance, and the disabling, lethal phase of the infection appears. "Benign" lesions of skin and of bone may and often do occur, but the chief threat from the development of chronic inflammatory and degenerative tissue changes resides in the cardiovascular and central nervous systems. Equally grave, though much less commonly encountered, are the late syphilitic lesions of liver, rectum, lung and other organs.

PROGNOSIS OF UNTREATED SYPHILIS

Acute syphilis in adults is rarely lethal and is only occasionally disabling. Nevertheless, it constitutes the first phase of a chronic disease which ultimately results in great morbidity and mortality. When acute syphilis is untreated about 25 per cent of patients will eventually attain a state in which no clinical or serologic evidence of the disease is manifest ("spontaneous cure"), about 25 per cent will die of other causes than syphilis, about 15 per cent will have serologic (blood serum) evidence of syphilis but will remain otherwise free of sign or symptom, about 12 per cent will experience syphilis of skin, mucous membrane or bone, approximately the same percentage will have cardiovascular syphilis, and a slightly smaller percentage will have neurosyphilis (fig. 2). In summary, somewhat less than 25 per cent will eventually die or become incapacitated by syphilis, about 12 per cent will have relatively benign active syphilis and the remainder will experience no personal menace to health from the disease.[14]

Latent syphilis, by definition, indicates infection without clinical signs or symptoms of disease in patients with normal spinal fluid. At the outset it should be stated that, so far as the future of the individual patient is concerned, untreated latent syphilis will by no means invariably terminate in crippling or devastating disease. It will be seen that the chief difference between the ultimate prognosis of untreated latent syphilis and that of untreated acute syphilis is due to the fact that a considerable number of patients with acute syphilis never attain latency according to the foregoing definition of this term. This is due to the presence of neurosyphilis. When true latency becomes established, neurosyphilis will rarely evolve. The Cooperative Clinical Group,[15] prognosticating on the basis of its own and Bruusgaard's experience, surmised that approximately 25 to 35 per cent of patients with untreated latent syphilis ultimately attain clinical cure and that an additional 25 or 35 per cent will have no evidence of their infection except a positive Wassermann reaction of the blood. The remaining patients with latent syphilis will experience relapses of the acute infection or progression into visceral or cardiovascular disease or disease of the central nervous system (fig. 3).[16] Thus approximately two out of three patients will experience no serious results from syphilitic infection. How does this alter the life expectancy of a person with latent syphilis, a person who has neither signs nor symptoms of the disease, whose cerebrospinal fluid is normal and who has only a positive reaction of the blood to indicate the presence of infection? Life expectancy is shortened from that for the general population between the age of 30 and 60 by 17 per cent if the patient is a white male and by 30 per cent if he is a Negro male.[17] A study of 100,000 applicants for life insurance subjected to medical selection and considered favorable except for

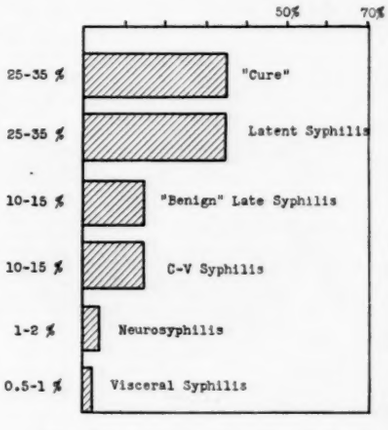

Fig. 3.—Outcome of untreated latent syphilis.

13. While a statement of fact, this point has no place in clinical therapeutics. The importance of the prompt treatment of all acute syphilis is obvious in the light of its great infectiousness.

14. Bruusgaard, E.: Ueber das Schicksal der nicht spezifisch behandelten Luetiker, Arch. f. Dermat. u. Syph. **157**: 309, 1929. Moore.[7]

15. Moore, J. E., and Others: Cooperative Clinical Studies in the Treatment of Syphilis: Latent Syphilis, Ven. Dis. Inform. **13**: 351 (Sept. 20) 1932.

16. It should be stated that untreated latent congenital syphilis is more prone to clinical relapse than untreated latent acquired syphilis (Smith, F. R., Jr.: Bull. Johns Hopkins Hosp. **53**: 231 [Nov.] 1933).

17. Usilton, Lida J., and Miner, J. R.: A Tentative Death Curve for Acquired Syphilis in White and Colored Males in the United States, Ven. Dis. Inform. **18**: 231 (July) 1937.

a history of syphilis indicated that actual mortality is about 1.4 times the predicted mortality.[18] If the patient is a woman it is probable that her life expectancy will be greater, since the incidence of serious lesions of the central nervous system and cardiovascular involvement is distinctly less in females than in males.[19]

While a relatively small number of untreated patients in Bruusgaard's series acquired neurosyphilis (4 per cent), it should be emphasized that routine studies of the cerebrospinal fluid were not made, and the material thus loses much of its value. Kemp and Menninger [20] pointed out that over 50 per cent of 680 patients who had received no treatment gave clinical or laboratory evidence of neurosyphilis. They noted but little difference in incidence between the sexes, males showing only a slight increase over females. While this observation indicates that signs and symptoms referable to the central nervous system commonly develop in the course of syphilitic disease, it is reassuring to point out that less than 10 per cent of all patients with acute syphilis (including both white patients and Negroes of both sexes) actually acquire clinical neurosyphilis and that only 1 or 2 per cent who complete the acute phase of the infection with normal cerebrospinal fluid (i. e., attain latency) face this threat.

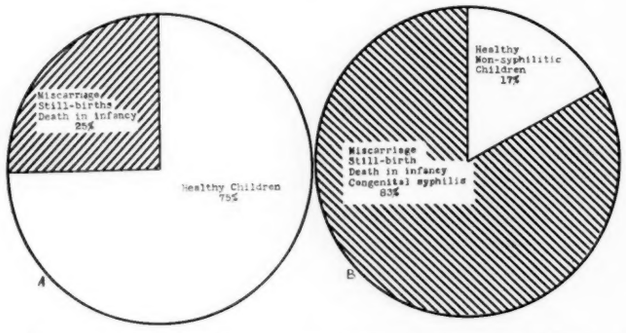

Fig. 4.—Effect of syphilis on pregnancy: *A*, outcome in absence of maternal syphilis; *B*, outcome in presence of maternal syphilis.

An analysis of data dealing with the probable outcome of latent syphilis in relation to cardiovascular disease [15] indicated that from 10 to 15 per cent of patients will experience this complication. Unquestionably the incidence of cardiovascular syphilis is greater for males than for females. This is true both in the Negro and in the white race. I do not feel certain that the Negro male is more susceptible than the white male to the development of cardiovascular syphilis. It may well be that the high incidence of cardiovascular disease in Negro men is due to the great frequency with which syphilis occurs in this group and not to increased individual susceptibility to syphilitic cardiovascular involvement.

The latent state is terminated and "benign" lesions of skin, mucous membrane and bone eventually develop in from 10 to 15 per cent of untreated patients with chronic syphilis.[15] While these constitute an important cause of morbidity they rarely result, if uncomplicated, in mortality.

Syphilitic disease of the liver, esophagus, stomach, rectum, mediastinal structures, lung, kidney or hematopoietic apparatus occasionally terminates the latent state (0.5 to 1 per cent) but these conditions develop too infrequently to be of importance in a general consideration of the prognosis of the disease.

In a discussion of the prognosis of latent syphilis, Moore [7] summarized the matter as follows: Assuming that the disease has existed for four years and true latency has been attained, with negative results of physical examination and tests of the cerebrospinal fluid, if the patient receives no treatment:

> At best it is probable that he has only two chances out of ten of developing serious trouble; at worst not more than three chances out of ten. If lesions do occur, there is probably not worse than an even chance that they will be incapacitating; and cardiovascular involvement is the chief serious risk which must be feared. . . . the danger of the development of neurosyphilis (probably excepting only a more or less purely vascular involvement) is largely past by the time true latency, in the sense in which I have used the word, is achieved.

THE PROGNOSIS OF UNTREATED SYPHILIS IN PREGNANCY

Since approximately 10 per cent of all syphilis is thought to be congenitally acquired, it is a matter of no small importance to consider syphilis as a factor in pregnancy and to determine what the outlook for the product of conception is when syphilis exists.

Experience indicates that, when infection is acquired at approximately the same time at which conception occurs, fetal syphilis will almost invariably result. It is difficult to see how fetal infection could fail to develop in the presence of generalized maternal infection, since the inciting agent of the disease is distributed throughout the body (spirochetemia). It is likewise difficult to see how with the same circumstances prevailing a pregnant woman infected in the seventh or eighth month of gestation could fail to infect the placenta and fetus, although apparently normal infants are born under such circumstances. Although evidence of infection may develop in these infants after birth, it has been attributed to infection during passage through the birth canal and nursing rather than to intra-uterine contamination with the virus. One wonders whether this paradox may not in many instances be explained by the existence of an intra-uterine lag or prolonged incubation period in the maturing fetus rather than by postnatal infection.

The observations of Jeans [6] and of the Cooperative Clinical Group [8] give accurate data relative to the incidence of syphilis in children born of women who have passed through the acute stage of the disease and are considered to have latent infection. Moore [7] presented this material in an impressive way (fig. 4). It is seen that when women with syphilis become pregnant the products of conception face an extremely hazardous future. From 30 to 50 per cent of such pregnancies terminate in miscarriages or stillbirths. From 18 to 30 per cent of the pregnancies result in viable offspring who do not survive infancy, and from 11 to 24 per cent result in infants with syphilis. Only 17 per cent of pregnancies in syphilitic women will result in healthy nonsyphilitic offspring who survive infancy. When these figures are compared with those for the outcome of pregnancy in nonsyphilitic women, the enormous importance of syphilis as a cause of fetal and infant mortality is apparent, and this in spite of what seem to be high figures for miscarriages, stillbirths and infant mortality for the "normal" group. Moore tersely made the contrast: "A syphilitic woman, untreated, has only

18. Williams, E. S.: The Social Significance of Syphilis, Virginia M. Monthly **63**: 360 (Sept.) 1936.
19. Stokes, J. H.: Modern Clinical Syphilology, Philadelphia, W. B. Saunders Company, 1934. Moore.[7]
20. Kemp, J. E., and Menninger, W. C.: Influence of Inadequate Treatment of Early Syphilis on the Incidence and Incubation Period of Neurosyphilis, Bull. Johns Hopkins Hosp. **58**: 24 (Jan.) 1936.

one chance in six of bearing a live, healthy infant as compared with the normal woman's three chances in four."

THE PROGNOSIS OF TREATED SYPHILIS

It has already been stated in this discussion that acute syphilis acquired in adult life rarely kills. It is, nevertheless, highly infectious. Persons with acute syphilis, while in no immediate danger of their lives, are passing through an experience which renders them dangerous to their intimate personal contacts. They make up the group which keeps the epidemic of syphilis raging. In the final analysis they are responsible for the 500,000 new cases which appear annually in the United States,[21] for the man or woman with acute syphilis constitutes the medium by which the spirochete passes to its next victim. The importance of this from the point of view of the public health can hardly be overemphasized. Furthermore, the patient with acute syphilis is in an extremely critical position with regard to his own future. This is true because it is during the acute stage of the infection that the chances are best for absolute "cure." It is apparent then that the patient with acute syphilis should not be reassured regarding his situation by the statement that he will survive the acute infection. On the contrary, he should be sensitized to the fact that he is a grave menace to his intimate associates and that the best chance for completely ridding himself of his infection exists only during its acute phase. His situation is indeed critical from the point of view both of his fellow man and of his own future. What does treatment offer him? Stokes and his associates [22] have considered this question in the light of data obtained from several large syphilis clinics.

TABLE 1.—*Results of the Best Present Day Treatment of Early Syphilis (Moore)*

Stage of Syphilis	Chance for Cure, Percentage
Seronegative primary syphilis	100
Seropositive primary syphilis	95
Early secondary syphilis	90-95

The figures in table 1 are Moore's [7] and represent the results obtainable only if patients cooperate fully, are treated expertly and bear treatment well. Under these circumstances "cure" may be obtained in from 90 to 100 per cent of cases. Granting that such ideal conditions frequently do not obtain, it is nevertheless clear (table 2) that, if the patient remains under medical observation, regardless of the amount and type of treatment administered the chances for good results are most encouraging.

It is obvious that the best treatment of late syphilis is the prevention of its development by curing early syphilis. This cure may be accomplished in 90 per cent of cases which come under observation during the acute stage of the infection. The all important fact to the patient that acute syphilis is "curable," together with the fact, equally important to the public health, that it is rendered noninfectious by treatment, places early syphilis directly in the spotlight of medical attention and effort.

It has been stated that it is difficult to obtain that degree of cooperation from patients with syphilis which insures proper, adequate treatment. What of those who receive inadequate treatment? It has been clearly demonstrated that inadequate treatment often reacts unfavorably on the course of the disease. The data supplied by the Cooperative Clinical Group indicate that 13 per cent of patients inadequately treated (less than twenty injections of arsphenamine) have recurrences of acute infectious lesions, whereas only 2.7 per cent of patients who receive twenty or more injections experience such recurrence. The reappearance of infectious lesions of the mucous membrane and skin after cessation of treatment represents concrete evidence (1) that the virus is not wholly eradicated (inadequacy of chemotherapy) and (2) that the patient is unable to suppress or control those organisms which survive chemotherapy (inadequacy of immunity). If no treatment at all is given the patient with acute syphilis, immune forces will in time convert the generalized infection into a focal one. When this occurs, immunity is usually effective or "solid" enough to prevent the recurrence of the acute infectious lesions. If the natural development of this resistance to infection is interfered with by chemotherapy, it is a matter of the greatest importance that treatment be continued until the infection is entirely eradicated. If it is withdrawn short of this, the patient may be deprived of the benefit of naturally acquired resistance to infection without attaining eradication of the infection. Recurrences of acute manifestations of syphilitic infection under such circumstances are by no means confined to the skin and mucous membranes. The mucocutaneous lesions are serious, for they spread disease, but they are not the source of physical incapacity or death of the patient. More serious are the acute exacerbations of syphilitic infection which occur in the nervous system (meningitis, involvement of cranial nerves).[23]

While it seems probable that so far as the individual patient is concerned no treatment is better than inadequate treatment for acute syphilis, this point of view certainly cannot be given consideration in practical therapeutics. The spread of syphilis is dependent on the existence of untreated acute syphilis. Therefore every patient with acute syphilis should be treated promptly regardless of the number of injections it may be possible ultimately to administer. A few treatments render acute syphilis at least temporarily noninfectious, and the majority of patients who have been thus rendered noninfectious will remain so even though they discontinue therapy long before obtaining the best ultimate result.

TABLE 2.—*Results of Treatment, Without Relation to Amount and Type, of Early Syphilis (Moore and Cooperative Clinical Group)*

Stage of Syphilis	No. of Patients Treated	Satisfactory Clinical Outcome, Percentage
Seronegative I	140	71.4
Seropositive I	274	53.3
Early II	912	49.8

The prognosis of acute syphilis adequately treated, untreated and inadequately treated has been studied by Moore, and table 3, from his monograph, illustrates the points which have been emphasized in this discussion.

21. New Cases of Syphilis and Gonorrhea, Ven. Dis. Inform. **17**: 38 (Jan.) 1936.

22. Stokes, J. H., and Others: What Treatment in Early Syphilis Accomplishes, Ven. Dis. Inform. **15**: 341 (Nov.) 1934.

23. Morgan, Hugh J.: Induced Syphilitic Meningitis (Meningorecurrence), M. Clin. North America **12**: 1369 (March) 1929. Morgan, Hugh J., and Dedman, W. M.: Neurosyphilis: An Analysis of Vanderbilt University Hospital Material Over a Period of Seven Years, South. M. J. **26**: 809 (Sept.) 1933. Moore.[7]

What has treatment to offer in the case of latent syphilis? The person with latent syphilis is free of symptoms and signs of disease and has only a positive Wassermann or flocculation reaction of blood to show for his infection. In the large number of cases of latent syphilis studied by the Cooperative Clinical Group the effect of treatment is most impressive when evaluated

TABLE 3.—*Estimate of the Probable Outcome of Early Syphilis (Moore)*

Type of Syphilis		Probable Outcome, Expressed in Approximate Percentage		
Original Diagnosis	Ultimate Outcome	Untreated	Inadequately Treated	Thoroughly Treated
Early syphilis	Serious late syphilis	25	35-40	5-10
	Benign late syphilis	15	15	5
	Latent syphilis	30	30	5
	"Cure"	30	15-20	80-85

in the light of the probable outcome of untreated latent infection. The figures in table 4 were obtained from Moore's monograph, from a recent publication by him [24] and from the reports of the Cooperative Clinical Group. It is apparent that from 70 to 80 per cent of early latent syphilis is curable in the clinical sense of that word, that less than 5 per cent of properly treated patients with latent syphilis acquire active lesions of chronic syphilis and that these are rarely incapacitating. The excellent prognosis of the treated patient must be attributed to a combination of effective immune forces present in him and the protection obtained by the specific treatment administered. It is therefore apparent that, while the patient who has progressed from the acute into the latent stage of syphilitic infection has forfeited his best chance for biologic "cure" in the strict sense, he has, if he chooses a good physician and if he presents himself within three or four years of the onset of his infection, an excellent chance for symptomatic

TABLE 4.—*Estimate of the Probable Outcome of Latent Syphilis (Moore, Bruusgaard and Cooperative Clinical Group)*

	"Cure," %	Latent Infection, %	Late Syphilis (Cutaneous, Mucosal, Osseous) %	Cardiovascular Syphilis, %	Neurosyphilis, %	Other Visceral Syphilis, %
Untreated	25-35	25-35	10-15	10-15	1-2.0	0.5-1
Adequately treated early latent syphilis	70-80	20-20	2-5	2-5	1-2.0	0.5-1
Adequately treated late latent syphilis	60-70	25-35*	1.6†	1.6†	1.6†	

* "Wassermann fast."
† Lesions rarely incapacitating.

and serologic cure. Even if he delays action until he is in the late latent stage he can be given an excellent clinical prognosis. True it is that the Wassermann reaction of the blood may be irreversible (25 per cent), but it has been shown that this need not be seriously considered if the disease has been accurately classified as latent syphilis; i. e., if infection in the central nervous system or cardiovascular apparatus does not exist. If the disease is correctly classified and actually latent, less than 5 per cent of patients properly treated will later have symptoms or signs of the infection. Thus the treatment reduces the morbidity, as it does for early latent infection, from 25 to 35 per cent to less than 5 per cent.

What is the outlook for established cardiovascular syphilis and syphilis of the central nervous system? The matter involves individual factors which all but defy statistical approach. These factors render the prognosis of chronic active syphilis a highly individualized problem. That modern treatment has resulted in an improved prognosis for patients with established cardiovascular syphilis, syphilis of the central nervous system and visceral disease is clear, but the subject cannot be dealt with in this discussion. My concern has been to determine the probability of the development of serious manifestations of infection and what can be done to prevent them.

THE PROGNOSIS OF TREATED SYPHILIS IN PREGNANCY

It has been seen that the presence of syphilis in the female creates an extremely hazardous future for the product of conception and that with syphilis the chance for a normal healthy child decreases from approximately 75 per cent to the appallingly low figure of 17

TABLE 5.—*Syphilis and Pregnancy (Cooperative Clinical Group)*

	Living Nonsyphilitic Children, Percentage		Syphilitic Children, Percentage	
Treatment before fifth month	78.4*	91†	6.6*	5.1‡
Treatment after fifth month	60.6*		23.4*	40‡

* Amount of treatment is not considered, only duration.
† At least ten injections of arsphenamine and appropriate heavy metal.
‡ At least ten injections of arsphenamine but less than ten injections of heavy metal.

per cent. What does proper treatment of the syphilitic mother do with respect to prenatal and infant mortality? It is difficult to answer the question directly and in a way which allows for comparison with the statistics on untreated syphilitic mothers. The Cooperative Clinical Group [25] furnished impressive figures on the results of treatment of 603 women who had 922 pregnancies after the establishment of their syphilitic infections. These figures, which indicate the results of varying amounts of treatment given for varying periods, are shown in table 5.

Adequate treatment started before the fifth month was followed by the birth of a living nonsyphilitic child in 91 per cent of the cases. Similar results were reported by Ingraham [26] and others. This observation indicates that congenital syphilis is from a practical point of view a preventable disease. Recognition of syphilis early in pregnancy and the administration of adequate standardized treatment will for practical purposes eradicate congenital syphilis. "Prevention is dependent upon the routine, early and repeated use of the serologic blood test on every pregnant woman and upon adequate early treatment once the diagnosis of syphilis has been made." Furthermore, when the presence of syphilis in the pregnant woman is not recognized until late in pregnancy, many more living

24. Moore, J. E.: The Question of the "Cure" of Syphilis, editorial, Am. J. Syph., Gonor. & Ven. Dis. **22**: 648 (Sept.) 1938.

25. Cole, H. N., and Others: Cooperative Clinical Studies in the Treatment of Syphilis: Syphilis in Pregnancy, Ven. Dis. Inform. **17**: 39 (Feb.) 1936.

26. Ingraham, N. R.: The Importance of Treatment in the Control of Congenital Syphilis, Ven. Dis. Inform. **19**: 124 (May) 1938.

nonsyphilitic children will be born if vigorous treatment is instituted than if inadequate therapy or no treatment is employed.[27] If early syphilis appears late in pregnancy and no treatment is instituted, the loss of fetal life may be as great as 46 per cent. This figure, according to the observations of the Cooperative Clinical Group, is reduced to 7.6 per cent when treatment is employed. These considerations make it apparent that no clinical aspect of syphilis offers a more challenging and at the same time promising problem to the clinician than syphilis in pregnancy.

SUMMARY

It commonly occurs that syphilitic infection becomes established without manifestations of the acute stage of the disease. The recognition of its presence is then dependent on either serologic tests or the ultimate evolution of serious sequelae. The incidence of cardiovascular syphilis and serious involvement of the central nervous system appears to be greater in patients who fail to react at the time infection occurs with acute lesions of the skin and mucous membrane than in those who experience these lesions. Thus asymptomatic infection seems particularly disposed to the ultimate development of serious sequelae. The frequency of asymptomatic infection in the female renders the general recognition of its presence and the prevention of congenital syphilis impossible without the employment of serologic tests of all pregnant women.

The threat of untreated syphilitic infection to the individual is great. It constitutes a menace to personal contacts; the earlier the infection in terms of elapsed time from the initial lesion, the greater the menace. The pregnant woman with untreated syphilis has only one chance in six for a healthy living infant as compared with the normal woman's three chances in four. There is some evidence that age, race and sex are factors in determining the morbidity and mortality of syphilis. Syphilis in infancy is commonly fatal. In adult life the Negro male seems to be in a particularly vulnerable position with regard to cardiovascular syphilis and the white male with regard to neurosyphilis. The infection is less likely to result in serious disability in women, yet syphilis in pregnancy constitutes an extremely serious problem.

With treatment acute syphilis can be rendered noninfectious and "cured," and with the best treatment "cure" is possible in from 90 to 100 per cent of patients. From 70 to 80 per cent of patients with early latent syphilis can be "cured" in the practical sense of that word. The treatment of late latent syphilis is of the greatest importance, since it greatly reduces subsequent morbidity and mortality from cardiovascular and benign tertiary syphilis. The early recognition and proper treatment of syphilis in pregnant women will greatly reduce prenatal and infant mortality and almost completely eradicate the tragic problem of congenital syphilis.

The outlook for the patient with syphilis is dependent in no small way on the physician who first discovers the disease. With the foregoing considerations in mind the physician may approach the therapeutic problem with confidence and optimism—qualities sorely needed by both patient and physician during the long months necessary if treatment is to be adequate.

27. McKelvey, J. L., and Turner, T. B.: Syphilis and Pregnancy: Analysis of the Outcome of Pregnancy in Relation to Treatment in 943 Cases, J. A. M. A. **102**: 503 (Feb. 17) 1934.

Special Articles

THE PHARMACOPEIA AND THE PHYSICIAN

THE TREATMENT OF INFANTILE ECZEMA

FROM THE POINT OF VIEW OF THE ALLERGIST

BEN Z. RAPPAPORT, M.D.
AND
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CHICAGO

This is the last of a series of articles written by eminent authorities for the purpose of extending information concerning the official medicines. The twenty-four articles in this series have been planned and developed through the cooperation of the U. S. Pharmacopeial Committee on Revision and THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION.—ED.

Although attempts at differentiation and classification of disease processes are of value, in infantile eczema these are difficult and, in fact, almost impossible because one type merges into another and because several conditions may be present at the same time. One is tempted to agree with Moro that "Ekzem ist was, aussieht wie ein Ekzem" (Eczema is what looks like eczema). The longer one deals with infantile eczemas, the more one concludes that classifications have restricted values and that differentiation is possible only after prolonged observation of the course of the eruption and its response to therapy.

The great impetus given to the study of eczema came with the introduction of the concept of allergy and the subsequent demonstration that some of these conditions depended on a specific sensitization mechanism. It has been in the infantile eczemas that the best results have been attained by the cooperation of the pediatrician, the dermatologist and the allergist.

The important conditions considered under the head of infantile eczema are (1) seborrheic dermatitis, (2) fungous infections, (3) contact dermatitis and (4) atopic dermatitis. The clinical appearance and course of these conditions have been discussed in detail by Sulzberger.[1] The discussion here will be limited to the contact type and atopic dermatitis.

HISTORY AS AN AID IN DIAGNOSIS

If we were limited in our practice to only one diagnostic medium, of all those available we would choose the history. A carefully taken history usually gives leads that point to the proper avenue of investigation; doing the indicated tests makes the diagnosis possible. The allotted space permits brief mention of only a few of the pertinent details to be elicited. These are as follows: Onset, course and duration of present complaint; age at onset; its first site; its appearance at onset, dry? wet? vesicular? erythemations? scaling? the degree of itching? (itching in atopic dermatitis is intense); sites and mode of spread; diet at onset (detailed and as exact as possible; was a new food added at onset?); present diet; foods that cause erup-

This is the last of three articles on this particular subject.

From the Department of Medicine, University of Illinois College of Medicine, and the Mandel Clinic, Michael Reese Hospital.

1. Sulzberger, M. B.: The Treatment of Infantile Eczema from the Point of View of the Dermatologist, J. A. M. A. **112**: 38 (Jan. 7) 1939.

tion to flare up; diet manipulation in detail (if certain foods were supposed to have been eliminated, it should be ascertained whether this was done completely); internal medications; topical medications (did eruption get worse after any of these?); environmental conditions, details of room furnishings, clothing, toys, insecticides, pets, cosmetics of attendants (does the rash get worse when the child is handled by some member of the family?); effect of removal from home; results of previous tests; occupations and hobbies of members of the family; atopic family history (suggesting that the condition is atopic).

This is by no means complete but indicates the method of questioning that must be adapted to the particular case. The more accurate and painstaking the history, the more likely that certain "leads" will be obtained to guide one in the diagnostic procedures to be described.

It is due mainly to the work of Sulzberger,[2] Bloch [3] and Jadassohn [4] that a clear understanding has been obtained of some of the underlying processes and their correlation with the observed clinical phenomena. It is well to recall that the upper layers of the epidermis are relatively impermeable and that the epidermis has no blood vessels while the upper cutis is richly supplied with them. These facts may be correlated with clinical, experimental and histologic studies as follows:

Contact Dermatitis.—The "shock tissue," i. e. the site of reaction, in contact dermatitis is primarily the epidermis. Histologically it is known that the primary lesion of the epidermis is edema, which can be interstitial and/or parenchymatous and eventuate in vesicle formation. Clinically contact type dermatitis is characterized by vesiculation. According to Sulzberger, the substances that are likely to call forth this condition are:

1. Substances that are soluble, having small molecular weight and rapidly moving ions which are capable of penetrating the horny layer. Examples are metallic salts such as nickel and mercury.

2. Substances soluble in the fat of the skin, such as the fatty substances of plants, e. g. ivy and ragweed oils.

3. Substances that have an affinity for horny material and firmly bind themselves to the horny layer of the skin, e. g. dyes.

4. Anesthetics that have an affinity for ectodermal tissue and fat, e. g. procaine hydrochloride and ethyl aminobenzoate.

5. Primary irritants, such as fat solvents, soaps, alkalis and acids.

The reactions given by the substances of the first four groups are of an allergic nature, i. e. specifically acquired reactions, in which no antibodies have as yet been demonstrated. The materials in group 5 usually act by means of a primary irritant effect on the epidermis, although typical allergic sensitization can here occur.

Having made the diagnosis of contact type dermatitis by history and clinical characteristics, one makes a test by applying the substance directly to the epidermis, by means of the patch test.

To do a patch test a small square of adhesive tape is used on the center of which has been placed a smaller square of cellophane. The material to be tested is placed on a still smaller piece of linen. The patch is removed in forty-eight hours, unless the itching becomes intense before this time has elapsed, in which case the patch is removed sooner. A positive reaction is characterized by an erythematous, papular, vesicular or bullous eruption corresponding to the area occupied by the square of linen. Sometimes the reaction is delayed and may appear later. It is well, therefore, to examine negative sites for several days after removal of the patch. One must ascertain that the material in the concentration used is not a primary irritant. A positive reaction, however, is not proof that this is the substance causing the clinical symptoms unless removal of the material from the patient's environment results in improvement and its subsequent presence causes an exacerbation.

Positive reactions to patch tests with substances of high molecular weight such as proteins are practically unknown in adults, perhaps owing to the fact that they are unable to penetrate the epidermis. In infants one does occasionally obtain positive reactions to patch tests with wool, feathers, silk and even food proteins, especially egg white. Whether this is from the greater permeability of the infant's skin or some other peculiarity of infants is not known. Moreover, it is unknown whether these reactions are the exact equivalents of the contact type, typical, eczematous reactions produced by patch tests. It is well known that woolen garments frequently cause an exacerbation of the eruption even in infants suffering from a dermatitis not based on a specific sensitization. Mechanical factors of a nonspecific nature are probably just as important as are specific sensitizations in the case of irritations apparently resulting from wool (the Koebner phenomenon, which is discussed especially in relation to infantile eczema by Kreibich [5]). To rule out possible contact type dermatitis caused by protein substances, it is well to make patch tests on infants with suspected foods and inhalants. The diagnosis in many of these cases is largely made in an inferential fashion. If the family history is negative for atopy, if scratch or intracutaneous tests give negative results, if reactions to patch tests are positive, if eosinophilia is absent and if exposed surfaces are involved, the diagnosis of contact dermatitis may be tentatively made.

Atopic Dermatitis.[6]—This is by far the most common form of infantile eczema. A family history of asthma, hay fever and other atopies is common. These patients usually have intense itching, eosinophilia and immediate wheal reactions to scratch or intracutaneous tests with the usual protein allergens, frequently have passive transference antibodies (reagins) and typically fail to give classic reactions to patch tests with contact substances. In a classic case the condition comes on in the third month and subsides usually by the end of the second year. A large number of these infants become free from atopic stigmas after the second year of life. However, some do not clear up and gradually

2. These works include:
Sulzberger, M. B., and Wise, Fred: The Contact or Patch Test in Dermatology, Arch. Dermat. & Syph. **23:** 519 (March) 1931.
Hill, L. W., and Sulzberger, M. B.: Evaluation of Atopic Dermatitis, ibid. **32:** 451 (Sept.) 1935.
Sulzberger, Spain, Sammis and Shahon.[6]
Sulzberger, M. B.; Wise, Fred, and Wolf, Jack: A Tentative Classification of Allergic Dermatoses, J. A. M. A. **104:** 1489 (April 27) 1935.
Sulzberger, M. B., and Goodman, Joseph: The Relative Importance of Specific Skin Hypersensitivity in Adult Atopic Dermatitis, ibid. **106:** 1000 (March 21) 1936.
Sulzberger, M. B.: J. Michigan M. Soc. **34:** 78 (Feb.) 1935.
Sulzberger, M. B., and Goodman, Joseph: Journal-Lancet **56:** 134 (March) 1936; M. Rec. **143:** 17 (Jan. 1) 1936.
Sulzberger, M. B.: New England J. Med. **215:** 330 (Aug. 20) 1936.

3. Bloch, Bruno: The Role of Idiosyncrasy and Allergy in Dermatology, Arch. Dermat. & Syph. **19:** 175 (Feb.) 1929.

4. Jadassohn, Josef: Handbuch der Haut und Geschlechtskrankheiten, Berlin, Julius Springer, Vol. 2, p. 353-492.

5. Quoted by Moro, Ernst: Eczema Infantum und Dermatitis seborrhoides, Berlin, Julius Springer, 1932.

6. Sulzberger, M. B.: Spain, W. C.; Sammis, F., and Shahon, H. L.: J. Allergy **3:** 423 (July) 1932. Sulzberger, M. B., and Vaughan, W. T., ibid. **5:** 554 (Sept.) 1934.

are transformed into the adult type of atopic dermatitis (disseminated neurodermatitis). Associated with this there may be hay fever, asthma and other atopies in various combinations. It is difficult to follow these patients for the time necessary to gain a complete picture. While most of them recover completely by the end of the second year and have no subsequent atopic diseases, in some these disturbances develop later, and in others cutaneous disorders last without interruption from infancy to middle life. It is noteworthy that many young persons with hay fever or asthma who present themselves for treatment give a history of infantile eczema.

The atopen to which these patients are sensitive acts on the vessels of the upper cutis. To test these vessels (the shock tissue) the substance must be brought to them. This is accomplished by means of the scratch or intracutaneous test. The test substances are usually proteins.

CUTANEOUS TESTS

The child should be tested with those foods which he is eating or has eaten. The common foods included in such tests are wheat, corn, rice, barley, oats, egg, milk, potato, tomato, carrots, peas, string beans, spinach, asparagus, banana, apple, orange, prunes (plums), apricots, raisins (grapes), beef, chicken, lamb, pork (bacon) and cod fish. If the child is breast fed or partially breast fed, tests may sometimes be necessary with those foods frequently eaten by the mother in addition to those in the child's diet.

Environmental substances, however, present a different problem, since most American homes have a variety of possible inhalant and contact materials. We test with a rather large list of environmental materials: feathers, wool, silk, dog dander, cat dander, rabbit dander, goat dander, cattle dander, hog dander, horse dander, house dust, cottonseed, linseed, kapok, orris root, pyrethrum and pollens (in older children, especially if worse in summer).

Many of the materials listed are not easily identified in their commercial use. Rabbit hair does not necessarily signify a live, hopping rabbit but more frequently an angora trimmed garment or a fur covered toy. Cattle hair may be woven in the Chinese rug on which the baby plays or in the pads under the carpets. Because of the obscure uses of many of these substances it is wise to resist the temptation of omitting tests in the absence of a history of exposure to these common inhalants. If a positive reaction to a substance is found, one must search diligently for the presence of the material. While in infants (up to 1 year of age) inhalants are seldom the causes of atopic dermatitis, there are a few for whom such atopens as feathers are important factors and whose condition is improved on their elimination. Peck and Salomon [7] found reactions to feathers in infantile eczema, and when positive reactions to patch tests were present they obtained definite improvement on removal of the feathers. Rostenberg and Sulzberger [8] have published some interesting tables on the results of patch tests with foods and inhalants in infantile eczema. In atopic dermatitis, patch tests with foods and inhalants are done only in infants up to 1 year of age. These are of no value in older children with typical atopic dermatitis.

7. Peck, S. M., and Salomon, Gustav: Eczema of Infancy and Childhood, Am. J. Dis. Child. **46**: 1308 (Dec.) 1933.
8. Rostenberg, Adolph, Jr., and Sulzberger, M. B.: Some Results of Patch Tests, Arch. Dermat. & Syph. **35**: 433 (March) 1937.

Technic of Tests.—For scratch tests commercially prepared dried extracts may be used. After the site has been washed with alcohol an instrument is used which makes six superficial scratches painlessly at one time. A circular borelike instrument described by Hill is simple, safe and relatively painless for this purpose. All scratch tests may usually be done at one visit with safety. These are done wherever clear skin is available, usually on the anterior aspect of the thigh in infants. A drop of twentieth-normal sodium hydroxide solution is placed on each scratch. Into this the allergen is gently rubbed with a toothpick. As a control, a drop of twentieth-normal sodium hydroxide solution is rubbed over one of the scratches and the other tests are compared with this. The sites should be observed frequently for the next thirty minutes. First there is usually a traumatic area of redness around the scratch. This subsides shortly and is followed in the area of a positive reaction by a slowly increasing redness which, in strong reactions, surrounds a wheal. This may develop any time from a few minutes to half an hour.

Intracutaneous tests are done only with those substances which give negative results on a scratch test. If a scratch test with a substance is definitely positive, it need not and it must not be used intracutaneously. When the intracutaneous technic is used an entire botanically related group should not be injected at one visit, e. g., the cabbage group (broccoli, cauliflower, turnips, brussels sprouts, cabbage and so on). Members from different groups should be selected to avoid constitutional reactions. For this reason further tests are discontinued for that day if several large reactions develop. Epinephrine solution (1:1,000) and a sterile syringe and needles must be at hand to combat a reaction. The intracutaneous wheal raised by the material injected (0.02 cc.) should not be more than 2 mm. in diameter. Twelve tests are usually done at one visit. The ordinary method of performing these is by means of a 26 or 27 gage needle on a tuberculin syringe. By observing all these precautions, one should be able to avoid untoward effects with the intracutaneous method.

Experience is necessary for the interpretation of the tests. What may be etiologically a clinically significant reaction in one person may be without clinical significance in another. In infants the reactions are often very slight and controls are essential. Here a scratch test with a definite erythema without redness at the control site should be considered positive. The formation of wheals with erythema is more significant. Positive intracutaneous reactions are larger than positive reactions to the scratch test. Positive reactions in infants, if correctly "read," are of more clinical value than in adults. The exception to this, which will be discussed later, is the reaction to egg white. Scratch tests, when positive, are more significant than intracutaneous ones because a higher degree of sensitivity is indicated and the errors are more easily avoided from insufficient experience in interpretation, improper technic, irritating materials and the occasionally highly reactive skin. No positive reaction can be considered significant, however, unless clinical trial proves its relationship to the dermatitis. Cutaneous tests are important aids and not the final means for diagnosis.

Trichophytin or Tuberculin Type of Reaction.—The shock tissue is the upper cutis and the cutis. The test is elicited by injecting intracutaneously 0.1 cc. of properly diluted micro-organisms or their products.

The resultant response is of the delayed type and comes on after from twenty-four to forty-eight hours. Characteristically the positive reaction is a papule with an area of surrounding edema and erythema, although immediate reactions of the wheal type have been reported.[9] When fungous or yeast infection is suspected it is well to test with trichophytin and oidiomycin extracts.

THE IMPORTANT ALLERGENS IN INFANCY

Foods.—Egg occupies a peculiar position in infantile eczema. As a result of the reactions to egg, many perplexing questions have arisen. On the other hand, many important fundamental facts have been uncovered. Most infants with atopic dermatitis when tested with egg white give immediate wheal reactions even though the child has never ingested egg. This is a true immunologic reaction as demonstrated by the presence of reagins in the patient's blood. Sensitization to egg probably occurs in utero by way of the placenta. It has been shown that unaltered egg antigen is capable of entrance into the circulation[10] and into mother's milk and thus may be transmitted to the infant. These infants may therefore have had previous contact with egg, and the reaction can be looked on as a typical allergic reaction. It is significant, however, that some infants without eczema give positive cutaneous reactions with egg white antigen. This finding is of great importance and has prompted the formulation of the theory that many infants on their first contact with a food may become sensitive to it, i. e. develop antibodies (precipitins, cutaneous tests). The subsequent ingestion of the food renders the normal infant immune and the antibodies disappear. Instead of achieving the normal state of immunity, the atopic child remains sensitive to this food. Since most infants who have atopic dermatitis and who give a positive cutaneous reaction for egg have never eaten egg, this finding is of little practical but of great theoretical importance. In older children egg may be a specific factor. For some time we have been testing these with five purified egg white protein fractions, furnished us by Dr. A. G. Cole. Varying reactions were found to the different fractions as well as to fowl meat in some cases. Because of this, when an infant is sensitive to egg we eliminate fowl from the diet while symptoms are present. When the skin clears a clinical test with fowl meat is done, and if no exacerbation occurs it is permitted in the diet.

In infancy milk is the most important article in the diet and the most frequent cause of atopic dermatitis. Cow's milk contains casein, lactalbumin, lactoglobulin and an alcohol soluble protein. These are all immunologically distinct. Casein has been shown to be the common antigen in milks from various species, while the other milk proteins are probably species specific. Casein is not coagulated by boiling and retains its antigenic activity after such treatment. It is a poor antigen according to most investigators, although Wells[11] states that "casein is far more active than some authors have maintained." Hill has come to the same conclusions from clinical observations.

It is known that many ingested substances find their way into milk. As has already been mentioned, milk offers a route whereby a mother can transmit various proteins to her child. The passage of wheat proteins into cow's milk causing symptoms in a wheat sensitive infant has been suggested.[12] In the breast-fed infant a thorough history of the foods which the mother eats is essential. In the case of the infant fed on cow's milk one must consider the fodder used in the particular locality as a possible additional factor in the etiology of obscure cases. Cattle fodder may contain large amounts of cottonseed, flaxseed, wheat and soy beans. Whether any or all of these are present in the milk in sufficient amounts to cause trouble is an unsettled question.

It is probable that the infant is most often sensitive to the lactalbumin or globulin, although Hill maintains that casein sensitization is not altogether uncommon. Thus an infant on a formula of cow's milk will frequently be improved by milk that has undergone prolonged boiling. This coagulates most of the albumin and globulin. Positive reactions to scratch tests with milk are infrequent, although intracutaneous tests with milk proteins are not uncommon.

Wheat is the most frequently ingested cereal and among the cereals gives the most frequent cutaneous reactions. Here too the role of common antigens is important, i. e. a patient sensitive to wheat may also be sensitive to a common antigen found in rye. Chemically and immunologically it has been shown that there are apparently two rather distinct groups of cereals—the wheat group (wheat, rye, barley, durum and the like) and the corn group (maize, sorghum and so on). There are probably common protein constituents within each group, although the two groups are apparently quite distinct. When there is evidence of sensitization to cereals, or when cereals are eliminated from the infant's diet, one must, in the breast-fed infant, take into account the possibility that the mother's and cow's milk contain the cereal antigens also.

Orange rarely gives a positive reaction in the scratch test and only occasionally in the intracutaneous test, although one frequently obtains a history of an increase in the severity of symptoms on its addition to the diet. If orange is omitted, other fruits or ascorbic acid should be used to avoid vitamin C deficiency. Fish sensitization, especially cod fish, has been reported.

Environmental Substances.—The evidence on hand would seem to indicate that in infants these materials can occasionally cause eczema by three or possibly four routes: (1) by inhalation and entrance into the circulation by way of the lungs; (2) by contact, a contact type eczema being produced, although on an excoriated skin the inhalant allergen may enter and be effective through the circulation; (3) by transepidermal penetration through the intact skin; (4) possibly by inhalation and swallowing of allergen with sensitization by way of the gastrointestinal tract.

SPECIAL DIAGNOSTIC PROCEDURES

Passive Transfer.—When the infant has such a generalized eruption that no clear skin is available for tests, and if a careful history and elimination diets have not resulted in clinical improvement, passive transfer tests are used for diagnosis. The child's serum is injected into numerous sites on a normal skin, and these are tested with the various allergens after forty-eight hours. Matthew Walzer uses this method of testing many of his atopic dermatitis patients, because he believes that their skin is altered to such a degree as

9. Sulzberger, M. B., and Kerr, P. S.: J. Allergy **2**: 11 (Nov.) 1930.
10. Walzer, Matthew: J. Immunol. **11**: 249 (April) 1926.
11. Wells, H. G.: The Chemical Aspects of Immunity, New York, Chemical Catalog Company, 1929.
12. Balyeat, R. M., and Bowen, Ralph: Allergic Diseases, Philadelphia, F. A. Davis Company, 1936.

not to give valuable reactions. He has been successful in clearing up many obstinate cases by using this method.

Special Extracts.—In a few patients in whom the studies mentioned here have failed to elicit the cause of the trouble, we have been successful with a method suggested by Bret Ratner. This applies only to environmental substances. The mother is questioned carefully for all possible suspected causes, no matter how remote they may appear. A sample of each of these is soaked overnight in twentieth-normal sodium hydroxide solution and scratch tests are done with the supernatant fluid.

DIAGNOSIS BY MEANS OF ENVIRONMENTAL AND FOOD STUDIES

The management of infantile eczema can be accomplished in most cases without the use of cutaneous tests. Environmental change sometimes produces results which amaze both the physician and the parents. Removal of the patient to a hospital room furnished with a horsehair or rubber encased mattress can by one simple procedure eliminate a complicated environment of overstuffed furniture, toys, cotton mattress, rugs, cosmetics, animal emanations, dyes and a variety of other substances too numerous to mention. If improvement occurs it is likely that one or more of these environmental substances is the cause. The effect of bringing suspected materials in the presence of the infant can then be studied. One must keep in mind, however, that exposure to suspected substances must be sufficiently long to reproduce the conditions in the home. This may not be practical. From a clinical point of view this type of study, while more difficult and tedious, is much more significant than cutaneous tests. The reason for frequent rapid improvement on hospitalization is not established, but it seems probable that one or more of the environmental home allergens has been the cause in such cases.

Similarly, an organized study, preferably in an "allergen free" environment, can be carried out by means of "elimination diets." Since milk and wheat are the commonest causes of atopic dermatitis, they should be eliminated first. It is necessary at this point to emphasize that multiple rather than single food sensitivity is usually present. Thus while such foods as fish oils, orange, tomato, the various cereals, fruits and vegetables in a large group of cases may be less important than milk and wheat, any or several of these may be the all important foods in the particular patient studied. All foods eaten must therefore be known. All must be suspected.

In most cases, because of the possibility of multiple sensitivity, wheat, milk and eggs should be removed at one time. In the infant this should not lead to any difficulties. Milk can be eliminated or, in the presence of malnutrition, replaced by evaporated cow's milk, milk boiled for two hours and skimmed or evaporated goat's milk. Sensitivity is in most cases to the whey proteins, and these are sufficiently altered by treatment with heat to make them nonallergic for any but the most sensitive patient. Since casein is not altered by heat, such a substitution will not improve the unusual patient who is sensitive to casein. One of the milk substitutes, such as soy bean products or almond-lac, may then be tried. Eggs need no substitution, while wheat may be replaced by corn, oatmeal, sago or tapioca prepared with water and sugar. Such substitution should result in improvement if the foods permitted are not among the causative factors.

Food Diaries.—An intelligent mother is in many cases the most important factor in a successful diagnosis. During the study it is desirable to have the mother understand the rationale for the various procedures. She should be taught to keep a carefully itemized diary of each meal and to record any flare-up of the eruption. If the condition becomes worse after certain meals, one or several foods may be found to be the common factors in these meals. They may then be eliminated or replaced and the effect noted.

Prophylactic Management.—Prophylactic care should not be considered either far fetched or fanciful in atopic families. It is common in our practice for the mother who is under allergic management to inquire what may be done to prevent the occurrence of allergic symptoms in an infant. The difficulty of determining the effectiveness of the measures does not diminish their importance. Certain environmental and dietary precautions can readily be taken in those infants with a family history of atopy. Regarding the environment, if a new mattress is needed it should be made of horsehair. This material, as prepared for such purpose, will not cause symptoms even in those sensitive to horse dander. If a cotton mattress is already in use, it should be sealed with a rubberized cover. If pillows are used, they should be completely encased in rubberized cloth. Old blankets that have had frequent washings are preferable to new ones. They should be covered with sheets so that no wool comes in contact with the child's skin. Contact of wool with the skin should otherwise be avoided. "Snow suits" are not uncommonly the cause of dermatitis in infants. The clothing next to the skin should be smooth, of linen or cotton. Irritation of the skin from other sources should be avoided. Upholstered furniture, dust gathering draperies and, if possible, carpets should not be used in the child's room. Animal pets should not be permitted.

Prophylactic food measures are not only more important but also more readily accomplished. From an immunologic point of view the rationale of the measures recommended depends on two facts: first that the gastrointestinal tract of the newborn infant is highly permeable, and second that denatured proteins are in general nonantigenic and more readily digested than are native proteins. That the gastrointestinal tract of the infant in its first weeks of life is highly permeable is indicated by the appearance in the urine of the proteins of colostrum if the infant nurses while this is secreted. In infants fed on cow's milk during the first weeks of life lactalbumin is found in the blood together with antibodies for this protein.[13]

With these facts in mind, the following precautions should be observed, especially in infants with an atopic background: During the colostrum period if a milk formula is used it should be prepared from evaporated milk. The heating of coagulable protein makes it insoluble so that it loses its antigenicity. Absorption therefore does not occur until it is digested by the gastrointestinal enzymes. While only the whey proteins are coagulable, these are the commonest causes of sensitivity to milk. It seems advisable to use evapo-

13. Lippard, V. W.; Schloss, O. M., and Johnson, Priscilla A.: Immune Reactions Induced in Infants by Intestinal Absorption of Incompletely Digested Cow's Milk Protein, Am. J. Dis. Child. **51**: 562 (March) 1936.

rated milk for the infant with atopic background not only during the colostrum period but also subsequently during the first year of life.

The next period in the infant's feeding that requires caution is when other foods are added to the diet. We would recommend that foods should be added singly rather than as mixtures. When wheat is added it should be definitely as wheat rather than in a cereal mixture. The one objection to the commercially prepared cereal mixtures is that they frequently contain many ingredients. Unfortunately cooking will not accomplish for wheat what boiling does for milk. If symptoms develop after she starts on a single cereal, the watchful mother quickly suspects the cause of the trouble. The diet can be increased almost as rapidly in this way as by the use of mixtures.

It is our belief that egg white should not be added to the diet until after the first year in infants with an atopic background. It should be thoroughly coagulated before it is given. A simple way of producing a high degree of coagulation of egg white, rendering it easily digestible, is to drop it slowly into boiling water with constant stirring. This produces a finely divided coagulum.

Active Management.—Dietetic treatment of the atopic infant from the point of view of the pediatrician is discussed in greater detail by Dr. Hill.[14] Here we emphasize the subject briefly from an immunologic point of view. What has been said under diagnosis and prophylactic care applies to the active management. Once the etiologic diagnosis has been determined, the management is not difficult. Most infants will tolerate foods to which they are sensitive if these are thoroughly denatured. We have never found it useful or necessary to give infants injections either of inhalants or of foods for immunizing purposes. Nor has oral immunization proved of value in our hands. It has been our experience that a spontaneous tolerance develops in most infants usually in a few months if the offending food is completely removed. It may be added in a well cooked state, in minute amounts which are gradually increased, with constant surveillance several months after the condition has cleared completely. The exception to this rapid gain in tolerance is found in patients sensitive to egg white. They have a tendency to remain sensitive to the material for much longer periods than to other foods.

Inhalants should likewise be removed rather than injected. Even such a ubiquitous and necessary substance as wool may be replaced in cold weather by cotton clothes made of closely woven poplin or gaberdine cloth, "suede cloth" (cotton), chamois jackets and leggings in highly sensitive patients. In those less sensitive, clothes made of refined woolens such as are used for men's suits will frequently answer the purpose. It is not unusual that the symptoms, after having cleared up, will return at a later date. This is explained by the fact that new sensitivities develop in these children. One must watch them "like a hawk," and when, after a period of improvement, they again have symptoms, the search must again be instituted, provided there has not been some unsuspected break in the regimen.

Local therapy has been omitted from this discussion, as the subject is covered in the papers by Sulzberger [1] and Hill.[14]

25 East Washington Street.

14. Hill, L. W.: Infantile Eczema from the Point of View of the Pediatrician, J. A. M. A. **111**: 2113 (Dec. 3) 1938.

CONFERENCES ON THERAPY

III. DISORDERS OF CARDIAC RHYTHM

NOTE.—*These are actual reports, slightly edited, of conferences by the members of the Departments of Pharmacology and of Medicine of Cornell University Medical College and the New York Hospital. The questions and discussions involve participation by members of the college staff, students and visitors. The next report will concern "The Treatment of Edema."*—ED.

The third of a series of conferences on therapeutics was held at the New York Hospital-Cornell University Medical College on Saturday Morning, Oct. 15, 1938, at 12 o'clock, Dr. McKeen Cattell presiding.

DR. MCKEEN CATTELL: The conference today will be on the subject of the treatment of disorders of cardiac rhythm and will be opened by Dr. Eggleston, who has kindly come here to give the clinical aspects.

DR. CARY EGGLESTON: The arrhythmias, disturbances in cardiac mechanism, constitute therapeutic problems from time to time, sometimes because they actually endanger life but perhaps more commonly because of the discomforts that they produce in the patients who are their victims.

The commonest of these arrhythmias in ordinary experience is perhaps the simplest of all in its implications, namely, premature beats. These may occur as isolated premature beats, they may arise in the auricles, in the auriculoventricular node or in the junctional tissues below the node. They may occur with extreme frequency, they may occur as coupled rhythm, they may occur in runs of many premature beats together, sequentially, giving rise to a form of tachycardia, or they may occur as an initial premature beat ushering in a run of paroxysmal tachycardia of ectopic origin.

In the treatment of premature beats, one of the first problems to solve, if you can, is that of the mechanism which is responsible for this localized irritation of the cardiac structures that gives rise to a focus of irritability, with a higher rate of impulse production than that of the normal sinus.

There are many poisons, tobacco, coffee and sometimes other poisons, which may produce premature beats. Alcohol, in my experience, is rarely an aggravating factor. Other forms of intoxication, such as absorption from various septic foci of chronic or subacute nature, may be responsible. Where one can with reasonable certainty raise a justifiable suspicion as to the possible intoxication which may be present in a patient, the elimination of that intoxication is the first logical step in treatment. That, however, is not a problem of drug therapy primarily.

Theoretically there are several agents that should be helpful in controlling these premature beats, where they are of sufficient importance to the patient to demand control. Practically a very few seem to be of material value. I am going to run over these and leave the discussion of the pharmacology of their actions to Dr. Gold.

Simple sedatives, such as the barbiturates, either actually control the frequency of ectopic premature beats to a greater or lesser extent or else they diminish the patient's sensitivity to them, so that his discomfort is no longer a troublesome factor.

The bromides act similarly and are sometimes quite as useful.

At times the administration of digitalis, probably by virtue of improving the efficiency of the myocardial con-

traction, diminishes the frequency of premature beats and in some patients eliminates them, at least temporarily.

Of course, the one drug that you probably all think of first is that of the quinine group, particularly quinidine, one of the isomers of quinine. Quinidine often controls premature beats. However, quinidine is a potentially dangerous drug, and even with the use of test doses one is not always secure in administering quinidine, though I myself have never had the misfortune of seeing a serious accident result from its administration. The troubles with quinidine are that in the first place a certain number of patients do not tolerate the cinchona alkaloids. They have an idiosyncrasy toward them which bars the successful administration of quinidine. Secondly, in view of the existence of a certain element of danger inherent in the drug itself, one does not always feel justified in running even small risks for the control of a condition which per se is of no material significance to the patient, except with reference to his comfort.

If your judgment dictates that you should use quinidine, then it may be administered in the usual manner of first trying the patient's susceptibility by giving him one or two test doses, usually small in size, seldom more than 0.2 Gm. per dose, two such doses commonly being given at an interval of three or four hours and it being determined whether the patient has any hypersusceptibility. If not, then one may employ quinidine in rising doses until one has administered either enough to control the premature beats or until the patient manifest signs of intoxication. A disadvantage is that while quinidine may control premature beats for a short time it seems in many patients to lose its effectiveness, and the maintenance dose of quinidine employed in these conditions is often futile in permanently or lastingly eliminating premature beats.

Other agents of a pharmacologic nature are scarcely worth mentioning, in my experience.

This leads me to a common disturbance of the cardiac mechanism that is closely related to premature beats, namely ventricular paroxysmal tachycardia, which is not an unusual complication of coronary artery disease, particularly with myocardial infarction. This possibly may be anticipated in a patient with myocardial infarction during the earlier days or weeks following the immediate accident, anticipated by the development of multiple ventricular premature beats, by the development of periods of excessively rapid heart beats, both of which of course should be checked and analyzed electrocardiographically if that is possible.

The administration of adequate doses of quinidine in anticipation of the development of a ventricular tachycardia apparently may prevent the attack. It is important to prevent it as this condition is probably frequently fatal very rapidly—fatal either because of the additional overstrain on an already damaged myocardium or fatal because of the tendency for the condition, under these circumstances, to pass over into a ventricular fibrillation.

It is difficult to assess the actual preventive value of the administration of quinidine under such circumstances because while we may anticipate the possibility of the development of paroxysmal ventricular tachycardia there is no assurance that it would have developed without the quinidine, and there is no ready means of using controls to check our knowledge based on sound reasoning.

This leads directly and logically to the question of the paroxysmal tachycardias themselves. These are of three types: auricular, auriculoventricular or nodal, both of which are supraventricular in their general classification, and ventricular paroxysmal tachycardias.

From the therapeutic point of view it is important to differentiate these tachycardias. That is not always a simple problem. Theoretically the auricular paroxysmal tachycardias should be recognizable by simple clinical means, because they have certain characteristics, namely, that during an attack successive counts of the heart rate are always uniform. There is no variation. In other words, if the heart rate is 190 and is counted again ten minutes later it will still be 190. Secondly, auricular paroxysmal tachycardia is perfectly rhythmic. Of course, the rate is pretty high, and clinically it is not easy to determine minor variations in rhythm, but electrocardiographically it measures out as perfectly rhythmic. Its recognition is of therapeutic importance because we have means by which it can generally be controlled almost immediately. These include the various factors by which vagal stimulation is brought about: pressure on the eyeballs, the promotion of the carotid sinus reflex by pressure in the neck over one or the other of the two carotid sinuses, the induction of nausea or vomiting by the administration of emetics such as ipecac or apomorphine, or even the stimulation of the vagus by the administration of morphine.

The patient frequently learns tricks of posture that permit him to check his own attacks. He may hold his breath and strain with his glottis closed. He may do a variety of other peculiar stunts which he has learned check his paroxysms, but failing response to any of these the administration of acetyl-beta-methyl-choline, known to the trade as mecholyl, in the form of its hydrochloride, subcutaneously commonly checks a paroxysmal auricular tachycardia almost instantaneously or within a comparatively few minutes at the outside. The dose ranges from 5 or 10 mg. up to 60 or 70 mg., and I have recently seen an example in which the administering physician had rather more courage than I probably would have had myself and administered a single dose of 80 mg. One should always be prepared immediately to check the side actions of acetyl-beta-methyl-choline. They are often quite pronounced. They consist of nausea, vomiting, flushing of the blush area particularly, profuse sweating and often diarrhea. They can be checked at once by the prompt administration of atropine, which is an antagonist, $\frac{1}{100}$ grain subcutaneously. If the initial dose is 10 mg. and the paroxysmal tachycardia is not checked, one may wait from twenty to thirty minutes and then give a larger dose. I believe it is better to wait than it is to administer small fractions at shorter intervals, though one may proceed by the addition of small fractions.

I know of no satisfactory means of controlling nodal paroxysmal tachycardia. Vagal stimulation is not trustworthy. Mecholyl does not seem to have any particular effect on it. Quinidine may control it but is not as effective in my experience as it is in ventricular paroxysmal tachycardia. Occasionally it would seem as though digitalization checked nodal types of paroxysmal tachycardia. This may be carried out by the usual methods, by oral administration or by intravenous injection in order to bring about a rapid digitalization. I have not had satisfactory results in the control of this form of disturbed cardiac mechanism.

The last of the rhythmic tachycardias is auricular flutter. This condition can be recognized at times clinically and is for the most part readily controllable. There is a high heart rate, usually with essentially rhythmic beating of the heart, the rate however not being excessive. It rarely is above 150 per minute. Above that it is usually paroxysmal tachycardia you are dealing with. It is difficult to differentiate clinically because its features are essentially like an excessive degree of sinus tachycardia. The electrocardiogram solves your problem and permits you to recognize the condition easily. Flutter can be controlled best by overdigitalization or at least maximal digitalization. The administration of digitalis up to or just beyond the point of minor intoxication commonly throws such a patient into a state of auricular fibrillation and then if digitalis is withdrawn the fibrillation is usually replaced by the resumption of a sinus rhythm. Occasionally this does not happen and the patient goes back to flutter. When this is the case, although it introduces an element of hazard, it is sometimes necessary after the termination of digitalization, while the patient is still in the state of fibrillation, cautiously to administer quinidine. Quinidine itself will control a certain proportion of patients with flutter. It must be administered in adequate doses.

Auricular fibrillation is a true arrhythmia, easily recognized clinically, occurring in many organic cardiac diseases, and sometimes without organic cardiac disease of demonstrable nature. The first question we should ask is: Are we justified in checking an auricular fibrillation?

There are two schools of thought on that problem. If the fibrillation is not associated with significant organic heart damage, then one may be justified in terminating it. The best example of this is seen in the patient who has had thyrotoxicosis, who has undergone adequate treatment for it including probably a subtotal thyroidectomy, yet who continues to manifest auricular fibrillation. Here we are often successful in checking the fibrillation lastingly. In general, however, paroxysmal auricular fibrillation, while it may be checked in the majority of cases by the adequate administration of quinidine, usually reappears either on the withdrawal of quinidine or on the reduction of the dose to what is considered safe as a maintenance dose.

In the presence of severe organic heart disease, the commonest form in which we see it being the rheumatic type with mitral stenosis, quinidine is of doubtful value. It is very questionable whether we gain anything by throwing such a patient back into sinus rhythm. For my own part I do not favor its use. I think we can generally control the manifestations of congestive failure more efficiently in such cases by the adequate use of digitalis and allied therapy while the auricles are fibrillating than we can if the heart is reverted to a sinus rhythm. Furthermore, not over about 10 or at most 15 per cent of such patients can be kept in sinus rhythm for any significant length of time.

I should like to speak of one other thing, and that is heart block. Ordinarily mild degrees of heart block, such as simple prolongation of the conduction time, or occasional dropped beats, seldom require any intervention except the elimination of the factor that is responsible, which commonly is digitalis in overdoses. Its withdrawal is followed by a return to sinus rhythm. Where, however, we have the Adams-Stokes syndrome, then we are faced with a crisis which must be met. Here there are two procedures: The first is the administration of epinephrine or ephedrine. At times this immediately increases the heart rate and checks the Adams-Stokes syndrome.

A second remedy of some value, but which carries with it some danger, is barium chloride. This must be administered with very considerable care and circumspection. A dose of from 20 to 30 mg., perhaps rising to as high as 50 mg., three or four times a day may increase the myocardial irritability sufficiently to prevent the occurrence of the Adams-Stokes syndrome or to check an attack.

There is a danger in the administration of epinephrine in that the Adams-Stokes syndrome may be the only recognizable manifestation of a recent myocardial infarction. I have seen two such cases. They were recognized, of course, and checked by electrocardiographic studies subsequently. But here the administration of epinephrine is risky because of the inherent danger of possibly producing a ventricular fibrillation.

But I am sure that I have already spoken long enough, for I have stolen two minutes that were not assigned to me.

PHARMACOLOGIC ASPECTS

DR. HARRY GOLD: There is experimental basis for the use of the barbituric acid compounds in the treatment of premature contractions and other forms of arrhythmias or disturbance of rhythm involving hyperexcitability or hyper-rhythmicity of the heart. It has been shown experimentally that the barbituric acid compounds prevent idioventricular rhythms by doses of epinephrine or ephedrine which in the untreated animal will produce these rhythm disturbances.

The explanation of the action of the sedatives may be in part their direct action on the heart and in part those other factors which Dr. Eggleston has mentioned.

With regard to quinidine intolerance, there are some interesting observations which indicate that the isomers of quinidine may often fail to produce signs of intolerance in individuals in whom quinidine itself produces signs of intolerance, and so you find individuals who cannot take quinidine but can take quinine. Quinine is the levorotatory isomer. Dawson of Texas has made a detailed examination of the related cinchona alkaloids with regard to the production of hypersensitivity reactions. He found, for example, one individual in whom one of these compounds produced an asthmatic attack. This person could take a compound of opposite rotation without encountering this reaction.

Dr. Eggleston used the term "manifest signs of intoxication" in connection with quinidine doses. I think it might be wise to call attention to the fact that there are important toxic actions of quinidine which perhaps are not "manifest." Of course, in a person in whom impaired hearing, impaired vision and gastrointestinal symptoms appear there is no trouble about the recognition of the symptoms, but these effects do not occur in some and the toxic effects are directly on the heart. These are recognizable in their early stages only by an electrocardiogram, in which there is a prolongation of the QRS time. The normal QRS time is about 0.08 second, and after doses as high as 30 grains or 40 grains of quinidine sulfate the QRS time may rise to as high as 0.12 second. I think it would not be well to allow the drug to exceed that, although a prolongation of that order does not appear to be injurious.

The question of tolerance to quinidine was brought up by Dr. Eggleston. I think it is a very important subject. There is the prevailing view that tolerance occurs, but we had an occasion to make a very striking experiment with regard to tolerance in an individual who is subject to frequent paroxysms of auricular fibrillation or flutter, with two, three or four such attacks a day, almost entirely incapacitating him. He was subject to them for years, and he was not relieved by anything that he had taken, even quinidine in the doses that had been used before coming to our clinic. We began to give him quinidine in mounting doses until we reached the dose of 60 grains a day. When we got there, all the attacks disappeared, and at the time the case was reported about two and one-half years had passed, and now I believe about four and one-half years has passed in which this patient has been on 50 to 60 grains every single day, with the exception of the experimental periods when we wanted to see what would happen if we withheld it. In him there has at no time been any indication of a developing tolerance to the drug. Every time we withhold it, within three or four days he again has attacks of auricular fibrillation and flutter, sometimes one and sometimes the other.

DR. JANET TRAVELL: Didn't that man have some prolongation of QRS time?

DR. GOLD: Yes. This was a very interesting case in another respect. It shows how relatively innocuous quinidine can be if it is used in the right way, even though one uses very large doses. He started with a bundle branch block. He had a QRS time of 0.12 second at the beginning and we raised his QRS time to 0.16 second, but it never went beyond that point. It took about 30 to 40 grains a day to bring it up to 0.16 second. Here is a person with a very badly damaged heart, with a bundle branch block to start with, taking 60 grains daily entirely safely and entirely free from attacks, as a result of such doses as one usually thinks would be dangerous. I think it is a safe procedure if one does it in this way; when one reaches a dose of 30 grains a day, begin to take electrocardiograms frequently to see what the QRS time is doing.

The cumulation of quinidine ceases in a very few days with a fixed daily dosage. By that I mean that, if the patient receives 60 grains of quinidine every day, the intensity of the effect measured by whatever phenomenon you select to measure the intensity—suppose it is the QRS time—will cease to increase after a few days. On the first day there will be some effect, on the second day there will be more effect, the third day still more effect, the fourth day perhaps still more effect and about the fifth day the effect will cease to increase. From now on the intensity of the effect that is reached will remain unchanged even though you continue to give exactly the same dose every day for months and years.

This is important to recognize because it means that once you have obtained a level of effect you do not have to worry much about further accumulation of quinidine which might produce more toxic effects on the heart. If you are measuring the QRS time you may find it lengthen to 0.12, 0.13 and perhaps to 0.14 second on the third day and to 0.15 or 0.16 second, let us say, around the fifth day of the use of a large dose of quinidine, but then it will not rise higher. You might ask whether it can rise higher. In the experiments that we carried out in connection with this matter, we determined that it can rise higher if you give larger doses, so that there is no doubt about the fact that accumulation of quinidine is a self-limiting process and that accumulation ceases after the first four or five days of a fixed daily dosage.

DR. ROBERT F. WATSON: I should like to emphasize a few of the points that Dr. Eggleston has brought up. The first one concerns the practical aspects of treating paroxysmal tachycardias, especially if one is outside and cannot obtain an electrocardiogram to establish definitely the type with which one is dealing.

Of course most cardiologists realize the small differences clinically between the two essential types of paroxysmal tachycardia (the ventricular and the supraventricular), the differentiation of which becomes important in the therapy. The physician practicing on the outside does not always know or cannot always tell the difference between the ventricular and the supraventricular types clinically. Certainly in those cases one should not use digitalis if for any reason one suspects that the patient may have ventricular tachycardia. It is one instance in which digitalis is not indicated and may be definitely contraindicated.

In that case certainly the best thing to try would be large doses of sedatives, probably morphine, and the usual methods of vagal stimulation, such as carotid sinus pressure or pressure on the eyeballs. If these simpler methods failed then quinidine would probably be a much safer drug than digitalis, especially if there was a chance of the ectopic rhythm being ventricular in origin.

With regard to acetyl-beta-methyl-choline (or mecholyl), a drug which has recently been used in the treatment of paroxysmal auricular tachycardia, I might say that it should not be given until the more common methods of stopping the attack have been tried. It is not entirely without some danger and certainly the more common methods of treatment, such as vagal stimulation, sedation and the administration of ipecac, should be tried before one resorts to mecholyl. Mecholyl is used in varying doses, as Dr. Eggleston has said. The dose may vary anywhere from 5 to 10 mg. to 50 or 60 mg., and it is certainly wise to start with a small dose. As a rule, the dose is better tolerated by an older person and varies somewhat with weight; that is, a younger person who weighs approximately the same as an older person usually will be more susceptible to the drug than the older person.

Often after injecting the acetyl-beta-methyl-choline, if the attack does not subside rapidly, that is, within two or three minutes, massaging the site of injection will increase the action of the drug and end the attack. If this does not cause reversion to normal rhythm, vagal stimulation by carotid sinus pressure together with the action of the drug may be effective whereas carotid pressure alone previously had not been successful. Before increasing your dose then it is always wise to try massage of the original site and also pressure of the carotid sinus together with the smaller dose.

It is also necessary that one keep atropine at hand when one is using this drug. It is an antagonist and will relieve the symptoms quite rapidly. Usually a fiftieth to a hundredth of a grain is kept ready and is used intravenously if necessary.

In the tachycardias sometimes all the usual methods (in the supraventricular as well as the ventricular types) may be unsuccessful and the patient may be very dangerously ill with cardiac failure. In that case the

one drug which will probably be most useful is quinidine. Quinidine intravenously occasionally has to be used in very rare cases. The dose varies from 0.2 to 0.4 Gm. given very, very slowly, and just as soon as the rhythm reverts to normal the administration is discontinued.

I should like to ask Dr. Gold about the patient he mentioned with the bundle branch block and the frequent attacks of auricular fibrillation and flutter. Apparently this patient had quite definite heart disease and frequent attacks which bothered him considerably. I wonder if it would not be better in the usual case (not questioning the fact that he obtained very good results with this one case) to digitalize such an individual rather than pushing quinidine to such a degree?

DR. GOLD: The average case of paroxysmal auricular fibrillation cannot be controlled by digitalization. I do not believe that I know any cases of paroxysmal auricular fibrillation or flutter in which we have been able by thorough digitalization, up to as much as they can endure, to abolish their paroxysms.

DR. WATSON: I did not mean to prevent it, I meant to control it when they have an attack.

DR. GOLD: The answer to that from our experience is that if we digitalize the patient in the ordinary way, when a paroxysm of fibrillation develops, the heart rate is still rapid and that brings us to an important question: How does digitalis slow heart rate? Let us consider a patient with paroxysmal attacks of auricular fibrillation. When he is not digitalized he comes in with a heart rate of 140. We put him on average doses of digitalis of the order of 4½ grains or 6 grains daily, and he continues on that way for months. Then two months later he comes in with another attack. He has been on digitalis throughout this period but his rate is still 140.

DR. WATSON: Do you digitalize fully?

DR. GOLD: The problem of the individual who has an attack of paroxysmal fibrillation once in two months is very difficult. It isn't often feasible to have him fully digitalized throughout this time in anticipation of the rare attack.

DR. WATSON: I understood that this patient had it much more frequently.

DR. GOLD: This patient was thoroughly digitalized until he was walking about week on end in a state of nausea and had as many attacks as he had before the quinidine was given. He had been run through every conceivable kind of management, so that for this one digitalis was out of the question. But our experience with these cases by and large is that it is practically impossible to insure a slow ventricular rate when a paroxysm comes, by continued digitalization. I think the reason for that is that the slowing of the ventricular rate by the ordinary doses of digitalis in the ordinary cases of heart failure with auricular fibrillation is not due to the same mechanism by which we are trying to slow it in most cases of paroxysmal auricular fibrillation. We do not have the time now to analyze the situation, but I believe that the slowing in the case of the individual with heart failure and auricular fibrillation is due chiefly to an improvement of the heart failure and that that takes much less digitalis than is required to slow the rate by the direct action on the conducting mechanism, which is the necessary mechanism when heart failure is not present.

DR. CATTELL: Do you care to comment on that, Dr. Eggleston?

DR. EGGLESTON: I think it ought to be emphasized that a large percentage of these patients who are subject to paroxysmal flutter or paroxysmal auricular fibrillation are within the older age group where there are degenerative changes of vascular origin, and the question has arisen in my own mind at least whether we were justified at all in attempting to control these paroxysms unless the paroxysm was a source of genuine discomfort or threat to the patient's welfare. In general, it has been my practice not to control them, not to attempt to prevent the paroxysms.

This is a very interesting case that Dr. Gold speaks of, but within my personal experience I have not been very successful in accomplishing such dramatic results from even maximum tolerated doses of quinidine. I think this is one of the more unusual responses. Is that your experience?

DR. GOLD: We have had several successful cases. In most instances the intervals between attacks are too long to apply this treatment satisfactorily.

DR. HENRY B. RICHARDSON: This morning there has been brought out the clinical distinction of various types of paroxysmal tachycardia. I should like to cite a case that occurred in my experience. A patient had a very violent pulsation in the veins of the neck, and that was improved by his remaining in bed. I believe there is a coincidence in time between the auricular and succeeding ventricular contractions. That appears then to be a point in the differential diagnosis. I should like to know to what extent that is useful.

DR. EGGLESTON: Theoretically that should raise the suggestion that it was a nodal tachycardia with retrograde auricular conduction, so that ventricular and auricular systoles approximately coincided. The easy direction for the wave to flow under those circumstances would be back into the veins.

DR. RICHARDSON: Patients with paroxysmal tachycardia of auricular origin sometimes have an increase in the PR interval. If the rate is too rapid the ventricular contraction then coincides with the next auricular contraction, producing a large venous wave in the neck.

DR. ADE T. MILHORAT: Might I say a few more words about mecholyl? It is well to remember that the patient should be in the reclining position because owing to a fall in blood pressure the patient might otherwise faint. Secondly, as has been emphasized, massaging the site of injection can induce further action of the drug; therefore the site of injection should be massaged shortly after the drug has been administered. The drug should never be given intravenously.

There are two important conditions in which the drug is contraindicated. These are asthma and hyperthyroidism. Patients susceptible to asthma will have a severe attack if mecholyl is administered, and it should be given cautiously in hyperthyroidism because Nahum and Hoff have observed the development of auricular fibrillation in four patients who previously had normal cardiac rhythm.

We observed the development of auricular fibrillation in this clinic in a patient with myasthenia gravis who was given large amounts of prostigmine. Many of the effects of prostigmine are similar to those of mecholyl. Furthermore, there appears to be an antagonism between quinidine and mecholyl. Patients receiving quinidine are likely not to respond to mecholyl. The mechanism of this antagonism in the cardiac muscle appears to be similar to that observed in the

striated muscles. There is an antagonism between quinine derivatives and drugs which have effects similar to those of vagal stimulation.

DR. CATTELL: Why should mecholyl cause fibrillation?

DR. MILHORAT: I do not know. I discussed that situation with Dr. Starr. He believes that any irritable myocardium might develop auricular fibrillation. Why this should occur he does not know, nor do I.

DR. EGGLESTON: I think it should be emphasized that mecholyl should be the last resort and should not be employed in any of these cases until all the usual methods of controlling paroxysmal tachycardia of auricular origin have been tried faithfully.

I find that a large percentage of physicians do not know anything about the carotid sinus. They do not seem to know even where it is, and it is pretty much of an accident when they try so-called vagal stimulation whether they approach anywhere near to the carotid sinus or not; but if one can locate by palpation as well as anatomic relations the approximate region of the carotid sinus, pressure on it is very frequently effective.

DR. GOLD: I think it is fair to say that no patient has ever had his paroxysmal tachycardia relieved by mecholyl without becoming pretty sick in the process. I think there is an explanation of the fact that mecholyl may cause fibrillation of the auricles. Vagal stimulation shortens the refractive time of the auricle. It is possible that in part the digitalis action in auricular flutter is due to that mechanism, namely, shortening of the refractory time; that may be why a circus movement is set up in the auricle when there is none present. That is why occasionally, in the case of auricular flutter, fibrillation will be produced by mecholyl. After that a regular sinus rhythm is established in much the same way as the way in which digitalis does it. I have often wondered whether in cases of resistant auricular flutter, in which full digitalization is ineffectual, a small dose of mecholyl after the digitalis might not perhaps revert a certain number of them. I refer to those in which digitalis alone appears to be incapable of converting the flutter into fibrillation. I think it would be well worth while trying that out some time.

STUDENT: How often is barium chloride effective in controlling severe heart block?

DR. GOLD: It depends on the kind of heart block. I thought of a question in connection with the remarks that Dr. Eggleston made about heart block. There are two kinds that cause the Adams-Stokes syndrome. One is the auriculoventricular block in which the heart goes from a regular sinus rhythm to complete block, let us say from 80 to 40 a minute, and in that process the patients sometimes faint. The second type is one in which they have a heart block to start with, an idioventricular rhythm which is about 40 a minute, and suddenly it goes down to 10 a minute; they faint in that process. The latter is an anomaly of rhythmicity. Barium chloride is useful in this type. The former is an anomaly of conduction. Occasionally digitalis is helpful here. In the kind in which impaired conduction is the problem, what digitalis does is to produce a persistent auriculoventricular block, and the fainting ceases. They get along pretty well with the constant heart rate of 40 in such cases. I wonder whether Dr. Eggleston would comment on this matter.

DR. EGGLESTON: I did not think there was time to differentiate between the two conditions. You are quite right, and you have covered the problem. It should be borne in mind that a complete heart block is consistent with long years of life. Dr. Niles and I together have seen a patient who has had a complete heart block from known and proved electrocardiographic signs back in the days when Dr. Walter James introduced the first electrocardiograph in this country in the Presbyterian Hospital. How long ago is that Dr. Du Bois?

DR. EUGENE F. DU BOIS: About 1910.

DR. EGGLESTON: Twenty-eight years, and he took records on her, and I have seen those original records, and she had a total block then. I saw her within two years, and she is still very well. Her heart rate is just the same.

STUDENT: I would like to ask Dr. Eggleston how he finds the carotid sinus and identifies it.

DR. EGGLESTON: It lies at the bifurcation of the carotid artery, usually approximately opposite the upper border of the larynx, and I think by gentle manipulation with the fingers, with the neck relaxed, one can make that area out with reasonable certainty. But instead of pressing with a single finger, in order to be on the safe side I have made it a practice of pressing with three fingers, so I would include the carotid sinus without much risk of missing it. At times, of course, you can feel a bulge, but in my experience that is not always possible. I know of no other way of locating it.

The session adjourned at 1:05 p. m.

Council on Physical Therapy

THE COUNCIL ON PHYSICAL THERAPY HAS AUTHORIZED PUBLICATION OF THE FOLLOWING REPORTS. HOWARD A. CARTER, Secretary.

BURDICK AIR-COOLED QUARTZ LAMP (PROFESSIONAL SPECIAL) CATALOGUE NO. QA-450 ACCEPTABLE

Manufacturer: The Burdick Corporation, Milton, Wis.

The Burdick Air-Cooled Quartz Lamp, Catalogue No. QA-450, is a professional type ultraviolet lamp. It is self starting without tilting and builds up to operating efficiency in approximately three minutes. It operates on 25 or 60 cycle alternating current only. The base is mounted on four 3 inch hard rubber casters. Immediately above the base is the control unit containing the transformer, relay and other electrical parts for starting and operating the burner. Starting switch and ammeter are mounted on top of the control unit. The ammeter is designed to indicate when the burner is built up and ready for use. The unit is finished in ivory and brown with chrome trimmings.

Burdick Air-Cooled Quartz Lamp.

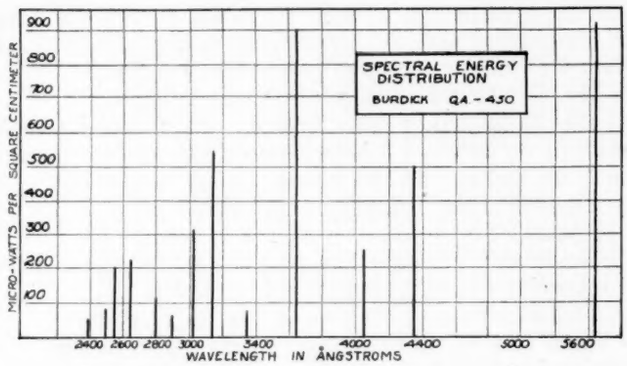
A hot cathode mercury quartz lamp of the H Uviarc type is the source of energy. The burner is mounted in an especially designed aluminum reflector which concentrates the radiation to an area 6 feet long by 22 inches wide. The hood is of double-walled construction with provision for ventilation and shutters. The reflector may be adjusted so as to direct the radiation vertically downward, horizontally or at an angle with shutters open or partially closed to limit the area of radiation. The lamp is adjustable from a height of approximately 45 inches to 75 inches, the swivel cross arm having an extension of approximately 15 inches.

The firm claims that the lamp will produce ample ultraviolet radiation at a distance of 30 inches from the burner to the patient to produce a first degree erythema (mild reddening) on the average patient after an exposure of thirty seconds.

The firm submitted data concerning the radiation characteristics of the Burdick QA-450 Lamp as determined by a qualified

physicist. A chart shows the spectral distribution and intensity in microwatts per square centimeter.

The unit was investigated clinically for the Council by a qualified physician and was reported to give satisfactory service.



Spectral energy distribution.

In view of the foregoing report, the Council on Physical Therapy voted to include the Burdick Professional Quartz Mercury Ultraviolet Lamp, Catalogue No. QA-450, in its list of accepted devices.

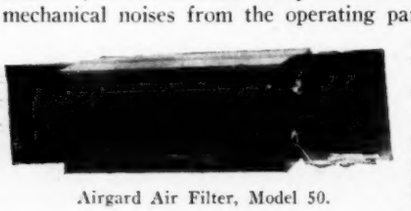
AIRGARD AIR FILTER, MODEL 50, ACCEPTABLE

Manufacturer: Airgard Manufacturing Company, 609 North La Salle Street, Chicago.

The Airgard Air Filter, Model 50, is designed to remove pollen, dust or other solid particles from incoming air for the relief of hay fever or other allergic diseases. It consists of a rectangular metal cabinet (28 inches wide by 12 inches high by 14½ inches deep) with a grilled outlet in front and hooded intake in the rear. The cabinet is lined with a sound deadening material. Operating parts include a specially built motor with sirocco fan constructed on a removable chassis which is mounted on rubber to overcome vibration. It requires a power input of about 65 watts an hour on 110 volt, 60 cycle alternating current.

Removable filter pads or cells are employed. These contain six ply air mat material produced from spruce pulp and treated with a colorless, odorless oil of very low evaporation constant. This matting is encased in cardboard frame in 2 inch convolutions with separators between to increase the area in the small space. Each filter contains approximately 15 square feet of material. Air passes through the filter at a comparatively low velocity.

Incoming air is discharged from the blowers into a plenum chamber, which is acoustically treated and designed to absorb mechanical noises from the operating parts and to muffle outside or street noises. The volume control may be regulated up to 500 cubic feet a minute. The fan speed may also be altered. Recirculation of room air or a combination of room and outside air is possible. With accessory equipment the unit may be converted into an air-conditioning plant.



Airgard Air Filter, Model 50.

The only therapeutic claim made for the unit is that it will remove 97 per cent of all solid matter carried in the incoming air stream, thus offering relief in allergic diseases caused by inhalation of pollens or dust particles. According to the manufacturer, this efficiency will be maintained throughout the life of the filter cell irrespective of pollen or dust concentrations.

In order to substantiate these claims, the unit was investigated by a competent investigator, who reported as follows:

"After proper installation of the Airgard, 0.5 Gm. of giant ragweed (Ambrosia trifida) pollen was placed at the inlet of the unit. Several slides were placed in front of the outlet grille and in several positions in the room. The machine was then placed in operation for a period of twenty-four hours. The slides were removed at intervals and examined for the presence of pollen and dust particles. Using 1.8 sq. cm. as the unit of measure representing the area used in calculating the amount of pollen per cubic yard of air in settling counts, no pollen grains were observed on those slides exposed throughout the room. The slides placed in front of the outlet grille showed only two pollen grains in ten unit areas counted. Considering the massive amount of pollen permitted to enter the intake, which was considerably higher than an entire hay fever season's total count, the efficiency in pollen removal is good. Only very fine dust particles of sizes smaller than ragweed pollen, which varies between 12 and 20 microns and probably in the neighborhood of 5 microns and less, were observed on the slides. These were, however, not numerous on the slides exposed before the outlet grille but were more numerous on the slides exposed throughout the room. The latter particles may have been stirred up by air currents, although the room had been prepared as dust free as possible."

The variable rheostat regulating the flow of air gives volumes varying from 100 to 600 cubic feet of air per minute. The grilles may be adjusted to deflect the air in four directions.

In view of the foregoing report, the Council on Physical Therapy voted to include the Airgard Air Filter, Model 50, in its list of accepted devices.

Council on Pharmacy and Chemistry

PRELIMINARY REPORT OF THE COUNCIL

THE COUNCIL HAS AUTHORIZED PUBLICATION OF THE FOLLOWING PRELIMINARY REPORT. PAUL NICHOLAS LEECH, Secretary.

COLI-BACTRAGEN (AMERICAN HOSPITAL SUPPLY CORPORATION)

Under the trade name Coli-Bactragen the American Hospital Supply Corporation offered for the Council's consideration a preparation of Escherichia coli proposed for use as a prophylactic against peritoneal infections. According to the information supplied by the firm the preparation contains gum tragacanth 1.5 per cent, aleuronat 0.5 per cent, Escherichia coli 2,400 million (treated with 0.5 per cent of formaldehyde solution U. S. P.) in 0.5 per cent salt solution. The firm states that merthiolate in 0.1 per cent of the 1:1,000 solution is used as a preservative. It is administered by injection into the peritoneal cavity before closure of the wound. The recommended dose is 25 cc. of the solution. The claims for the product are based on the work of Dr. Steinberg which was reported in *Surgery, Gynecology and Obstetrics* **57**:15 (July) 1933 and in the *American Journal of Clinical Pathology* **4**:253 (May) 1936. This is a report of 391 patients under observation in hospitals at Toledo, Ohio. The results substantiate the experiments with dogs. It is claimed that the product acts by mobilizing a large number of leukocytes in the peritoneal cavity and that the gum tragacanth serves to retain them there.

Coller and Ransom (*Ann. Surg.* **104**:636 [Oct.] 1936) used the product on seventy-two patients operated on for carcinoma of the rectum. Twelve of these patients died, but of other causes than peritonitis. These authors state that they have used the intraperitoneal injection of some form of Bactragen about 300 times without harmful effect and conclude, "Bactragen (Steinberg) has a place in protecting against infection if gross contamination occurs." It is unfortunate that a control group of patients without the use of Bactragen is not reported on by these authors, although it may be assumed that previous operations served as a basis of comparison.

Horsley (*Arch. Surg.* **36**:190 [Feb.] 1938) in a general article on peritonitis devotes two or three pages to a description of the use of Coli-Bactragen (Steinberg) with apparent approval but gives no original data as to the results of his use of the product; in a subsequent publication (*Am. J. Surg.* **40**:34 [April] 1938) he again stresses the value of Coli-Bactragen on the grounds of personal experience. In a personal communication which was submitted to the Council, Horsley states:

"I have used the Coli-Bactragen rather extensively and while, of course, it is not a panacea for the prevention of peritonitis, it is certainly a very great help. I have had this demonstrated in a number of instances."

Commendatory letters have been received from other surgeons.

The available material offers favorable evidence for the usefulness of Coli-Bactragen as a prophylactic against peritonitis in surgical cases in which the danger of peritonitis appears to be imminent or in the presence of gross contamination occurring at the operation or shortly before. Although Steinberg has reported an adequate number of cases in which the product has been used, the Council feels that more published data from independent sources on the use of the product in human cases are necessary. The label, package and package enclosure are satisfactory except that for greater clarity the sentence "A period of one and one-half or two minutes should elapse before the material is completely evacuated into the syringe" might be changed to "Since the material is gummy, a period of one and one-half to two minutes should elapse while it is being drawn slowly into the syringe."

The following statement on the label is noted: "Effective in 3 hours—Lasts for 3 days." The evidence submitted indicates that this phrase is approximately true, but it does not appear to have a legitimate place on the label. The Council would not object to the phrase on a package folder or collateral advertising "May be expected to be effective in about three hours and to continue so for about three days." The statement on the label should be deleted.

The Council has not considered the acceptability of the name "Coli-Bactragen." It would not appear, however, to be objectionable provided the firm can establish its right to the use of a coined name for the product. The Council postponed consideration of Coli-Bactragen until further corroborative published evidence becomes available, and authorized publication of the foregoing preliminary report.

REPORTS OF THE COUNCIL

THE COUNCIL HAS AUTHORIZED PUBLICATION OF THE FOLLOWING REPORTS.

PAUL NICHOLAS LEECH, Secretary.

ALB-ARGENTUM NOT ACCEPTABLE FOR N. N. R.

Under the name "Alb-Argentum" the Alb-Argentum Laboratories, Inc., of Boston presented for the Council's consideration a preparation stated to be a compound of silver iodide with a soluble, hydrolyzed gelatin base containing from 18 to 22 per cent of silver iodide in colloidal combination and corresponding to from 8.3 to 10.1 per cent of metallic silver. It is said to be prepared by treating hydrolyzed gelatin with silver nitrate to form silver gelatose, which is then treated with the combining equivalent of potassium iodide, filtered and evaporated to dryness in vacuo. The finished product is stated to contain from 0.1 to 0.5 per cent excess of combined potassium iodide over that required to effect the formation of silver iodide. The firm claims that it is nonirritating to mucous membranes, is practically nonstaining and will not coagulate albumin. The firm also claims that in vitro laboratory tests indicate that it is as effective as like concentrations of phenol against Staphylococcus aureus and the gonococcus. The Council questioned whether this claim meant that the preparation has several merits not found in any other colloidal silver iodide, chief among them being the five enumerated.

The sale of the product is promoted through detailing physicians by personal call and direct mail. The manufacturer did not submit any special bibliography. Sollmann in his Manual of Pharmacology states:

"*Silver Iodide.*—Freshly precipitated silver iodide was recommended by Siter and Uhle, 1905, but has not come into general use. Thum, 1915, gives a formula for concentrated solution of silver iodide. Colloid silver iodide has been used intravenously, similarly to collargol producing leukocytosis, etc. (von Voigt and Corinth, 1919). A colloidal silver iodide preparation is marketed as 'Neo-Silvol'; a colloidal silver chloride as 'Lunosol.'"

The Council considered the name Alb-Argentum and pointed out that Alb-Argentum is a proprietary name for a mixture of silver iodide with a gelatin base which yields a colloidal solution. Since apparently there is nothing novel in such a preparation, the use of a proprietary name is not acceptable. The firm was informed that the Council would not be adverse to the name Silver Iodide Compound or Colloidal Silver Iodide Compound.

The firm was informed that acceptable critical evidence, both experimental and clinical, of the efficacy and nonirritating quality of this particular colloidal silver iodide preparation must be submitted before the product could receive favorable consideration.

After the firm had considered the Council's report it wrote that it could not meet the stipulation that the name be changed. The firm offered no comment on the other objections enumerated in the Council's report but asked simply that it be permitted to withdraw its request for acceptance. In view of the firm's failure to make the product acceptable it is the duty of the Council to inform the medical profession concerning it. The Council therefore declared Alb-Argentum unacceptable for New and Nonofficial Remedies because it is marketed under a coined proprietary name with claims which are not based on acceptable clinical and experimental evidence.

PULVOIDS SULFANILAMIDE AND SODIUM BICARBONATE (THE DRUG PRODUCTS CO., INC.) NOT ACCEPTABLE FOR N. N. R.

The Drug Products Company's brand of sulfanilamide has been accepted by the Council. When the firm presented this product it also presented a dosage form under the name of Sulfanilamide-Sodium. The firm's attention was called to the fact that "Sulfanilamide-Sodium" is an erroneous name because the product is apparently not sulfanilamide sodium but a mixture of sulfanilamide and sodium bicarbonate. The firm then changed the name to "Pulvoids Sulfanilamide and Sodium Bicarbonate." It had also been pointed out to the firm that there appears to be no need of prescribing sodium bicarbonate and sulfanilamide in fixed proportions. The purpose of the sodium bicarbonate is to combat acidosis, which will vary in different individuals. It is so easy for physicians to prescribe sodium bicarbonate concurrently as indicated that the combination represented by the product would appear to offer no advantage except as a sales point under the heading "convenience to the physician." The promotion of such a fixed dosage form is likely to encourage lack of discrimination in prescribing these two drugs in proper amounts. In view of this the firm was informed that the Council could not accept this unnecessary and possibly dangerous dosage form. Despite the Council's statement the firm announced its intention of continuing the marketing of this product.

The Council, therefore, declared Pulvoids Sulfanilamide and Sodium Bicarbonate (The Drug Products Co., Inc.) unacceptable for inclusion in New and Nonofficial Remedies because it is a superfluous and possibly dangerous mixture in fixed proportion of well known drugs which had better be administered separately when indicated.

NEW AND NONOFFICIAL REMEDIES

THE FOLLOWING ADDITIONAL ARTICLE HAS BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES. A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION.

PAUL NICHOLAS LEECH, Secretary.

ANTIPNEUMOCOCCIC SERUM, TYPE I (See New and Nonofficial Remedies, 1938, p. 397).

The Gilliland Laboratories, Inc., Marietta, Pa.

Antipneumococcic Serum, Refined and Concentrated, Type I.—Prepared by immunizing horses with intravenous injections of the virulent and avirulent cultures of type I and type II pneumococci. Trial bleedings are made at frequent intervals and when the serum has reached a sufficient degree of potency for type I pneumococci the horses are bled aseptically and the serum is refined and concentrated by the method of Lloyd D. Felton (*J. Infect. Dis.*, December 1928, p. 543). The concentrated product contains type II pneumococcus antibodies but not in therapeutically important amounts. After concentration, sterility tests are carried out in the manner prescribed by the National Institute of Health and safety tests are carried out by injection into white mice and guinea pigs. The potency of the product is expressed in terms of the unit described by Felton (*Boston M. & S. J.*, May 15, 1924, p. 819; *J. Infect. Dis.*, September 1925, p. 199; October 1925, p. 309), the unit being one-three hundredth cc. of the control serum (P-11) distributed by the National Institute of Health. Marketed in packages of one syringe containing 10,000 units and in packages of one syringe containing 20,000 units, each accompanied by a vial of dilute serum (1:10) for the sensitivity test.

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SATURDAY, JANUARY 28, 1939

PRESIDENT'S MESSAGE ON THE NATIONAL HEALTH PROGRAM

Elsewhere in this issue [1] appears the complete text of the President's message with which he sent the report of the Interdepartmental Committee to Coordinate Health and Welfare Activities to the Congress of the United States.

The President's message calls attention to the fact that this report is the outgrowth of the National Health Conference which was held in Washington in July and of conferences by the Interdepartmental Committee with special committees representing various organizations in the medical and the health fields. The President points out that he has been particularly concerned by evidence of inequalities that exist among the states as to personnel and facilities for health services and by equally serious inequalities of resources and medical facilities and services in different sections and among different economic groups. "The objective of a National Health Program," he says, "is to make available in all parts of our country and for all groups of our people the scientific knowledge and skill at our command to prevent and care for sickness and disability; to safeguard mothers, infants and children; and to offset through social insurance the loss of earnings among workers who are temporarily or permanently disabled." There is no proposal for any great expansion of federal health services. The aim is instead a flexible program to be worked out and administered by states and localities with the assistance of federal money.

The President recognizes the increased length of life and improvement of average levels of health and wealth of our people but he is disturbed by the fact that numbers of individuals are still without the benefits which have come to the vast majority. He has therefore recommended the report of the Interdepartmental Committee for careful study by the Congress.

1. Organization section, page 333.

THE PURIFICATION OF TUBERCULIN

Eight years after the discovery of the tubercle bacillus in 1882, Koch introduced old tuberculin. A tremendous amount of experimental work has since been carried out in an attempt to elucidate the nature of the active principle. Because of the importance of this problem the Committee on Medical Research of the National Tuberculosis Association selected it for thorough investigation years ago. A decade of research by Dr. Florence B. Seibert and her associates has resulted in valuable contributions to our knowledge of the nature of the substance and of its action. The active principle is protein in nature; when tubercle bacilli are cultivated in a synthetic medium, the development of tuberculin activity coincides with the formation of protein. The chemical changes that occur during growth were studied and this active principle was isolated, now known as the purified protein derivative, a product extensively used as a standard substance for the tuberculin test.

Recent reports [1] describe the use of the most modern research tools in an intensive study of substances prepared from tuberculin medium filtrates. The molecular uniformity of the various fractions isolated was determined by means of the Svedberg ultracentrifuge as well as by electrophoresis. Throughout the study of the various preparations the relationship between tuberculin potency and antigenicity on the one hand and molecular size and shape and electrochemical properties on the other was noted. The ultimate object was to prepare homogeneous fractions having certain definite chemical and immunologic properties. By chemical means a homogeneous protein fraction was obtained from human tuberculin which possessed a molecular weight of approximately 32,000 and which contained only 2 per cent polysaccharide. This substance possessed complete antigenicity both in the production of antibodies and in the elicitation of serum and cutaneous reactions.

Further investigation showed that the nonantigenic purified protein derivative, which was thought to be the smallest potent tuberculin molecule, was not homogeneous in sedimentation and that it contained 22 per cent nucleic acid. Electrophoretic studies also indicated the presence of polysaccharide. By fractional precipitation with hydrochloric and trichloroacetic acids and subsequent electrodialysis, a protein fraction was isolated which possessed a molecular weight of about 16,000. This is approximately the same molecular weight as that found for the molecules in the original medium that are antigenic. It is thought that the loss of antigenicity of the substance isolated is at least partly due to a distortion or change of configuration of its molecular structure. A study of this structure indi-

1. Seibert, Florence B.; Pedersen, Kai O., and Tiselius, Arne: Molecular Weight, Electrochemical and Biological Properties of Tuberculin Protein and Polysaccharide Molecules, Am. Rev. Tuberc. **38**: 399 (Oct.) 1938. The Purification of Tuberculin, editorial, ibid., p. 523.

cated that it was not spherical but rather quite asymmetrical and probably considerably stretched. The present practical use of the purified protein derivative as a standard is not affected by the fact that it is not entirely homogeneous; indeed, the opinion has been expressed [2] that the purified protein derivative of tuberculin is the best reagent so far produced for diagnostic tests in man. Because of the stability and constancy of the purified protein derivative it is invaluable as an agent for the Mantoux test.

While new ideas are of prime importance in motivating investigation, new experimental methods give fresh impetus to research work and alert investigators are quick to take advantage of them. No better example could be cited than the use of the ultracentrifuge and the electrophoresis apparatus as aids in the purification of tuberculin. In little more than a decade since its invention the ultracentrifuge is being used to obtain fundamental data on a substance which promises to be of great importance to the public welfare.

MENTAL DISORDERS IN URBAN AREAS

In a recent investigation of the genesis of mental disorders, Faris and Dunham [1] made a record of the geographic distribution of mental disorders as based on their incidence in different socio-economic areas of one large city (Chicago) and one smaller city (Providence, R. I.). Previous sociologic studies have indicated that Chicago may be divided into more or less distinct concentric zones consisting of a central business district, occupied largely by stores, business offices and so on; then a transition zone, characterized by expanding industries, high land values and deteriorating residential buildings with so-called slums; a third zone consisting largely of working men's homes and intermediate in many respects between the slum areas and the residential areas, and two outer zones composed principally of apartment houses and commuter homes and inhabited largely by upper middle class families, many of them owning their homes. Since all patients with mental disorder in Chicago, who are cared for in public institutions are brought first to the Cook County Psychopathic Hospital, it was not difficult to allocate all state institutional patients to their zones of residence. The total number of cases for each zone (more detailed divisions were actually employed) was divided by the adult population of that community in order to obtain the frequency rates. The resultant rates ranged from a low of 110 cases of mental disease per hundred thousand of adult population in a high-class residential area to a high of 1,757 in the central business district. The distribution, in fact, in Chicago showed a definite pattern, the highest rates being clustered about the center of the city with progressive lowering as the distance from the center increased, with the exception of certain known deteriorated regions near the periphery. The investigators then plotted the distribution patterns of certain pathologic types of insanity, namely schizophrenia and its clinical varieties, manic-depressive psychosis, alcoholism and drug addiction, dementia paralytica in vice areas and the psychoses of old age. For schizophrenia as a whole, the configuration of distribution was strikingly similar to that of all types of mental disorder combined, although there were certain wide differences in the patterns of certain clinical types. The manic-depressive psychoses, however, were unlike schizophrenia in almost every respect of distribution, the former failing to show a typical pattern or any definite concentration in the more central, disorganized and poverty-stricken areas in the city. In fact there was a manifest tendency, although not clearly defined, for the manic-depressive to come from a higher cultural and economic level than the schizophrenic cases. The rates for alcoholic psychoses and drug addiction were also at their highest in and near the center of the city in the so-called zone of transition, and dementia paralytica had its greatest frequency in the proximity of houses of prostitution. The psychoses of old age, on the other hand, tended to concentrate in the central slum and Negro communities, but the rates did not always appear to represent a function of the distance traveled from the center of the city, as was the case with schizophrenia and mental disorders as a whole. In general, with allowances for local differences, the observations in Providence were similar to those in Chicago.

Following these factual investigations the authors presented a hypothesis to explain at least some of the observations. After discussing other possibilities they suggest that the nature of social life and conditions in certain areas of the city are in some way the cause of high rates of mental disorder. Especially for the schizophrenic group they believe that the lack of adequate social contacts in the disorganized sections of the city, from which most cases of mental disorder arise, produces a sense of isolation in the individual, which moves him in the role of an outcast and has a tremendous effect on the development of the personality. Lack of sufficient self confidence and the consciousness that others do not desire one's company may act as a serious barrier to intimate social relations and may therefore be a significant factor in accounting for the high rates of schizophrenia in certain parts of the city. In further support of this contention are the observations that a "spoiled childhood" is found in the background of more than 50 per cent of persons with schizophrenia and that persons living in communities which are populated not primarily by people of their own nationality or race are more liable to certain forms of mental disorder than when they are living in other communities where the majority of the people are like

2. Parish, H. J.: The Modern Outlook on Tuberculin, Tubercle **19:** 337 (May) 1938.

1. Faris, R. E. L., and Dunham, H. W.: Mental Disorders in Urban Areas: An Ecological Study of Schizophrenia and Other Psychoses, Chicago, University of Chicago Press, January 1939.

themselves as to race or nationality. This study shows that urban areas characterized by high rates of social disorganization are also those with high rates of mental disorder. Whatever the validity of the proposed hypothesis to explain this association may prove to be, the facts gathered alone, while they may or may not suggest lines of cleavage that will point the way to a clinical classification, as H. Douglas Singer suggests in the foreword, constitute a contribution of fundamental importance to this difficult subject.

Current Comment

INCIDENCE OF TONSILLECTOMY

Glover [1] has recently estimated that 200,000 tonsillectomies are performed annually in England and Wales. After the war, during which there was a lull in the number of tonsillectomies, a rapid rise led to a peak in 1931. In that year Newman strongly urged a more conservative attitude toward this operation. Other similar reports also exerted a definite influence on medical opinion. Since 1935, after a considerable drop, the rate has been rising once more. The operation is more frequent in boys than in girls; the highest age incidence is in the period 5 to 7 years. This high incidence between 5 and 7 is, Glover believes, due to many operations at this age being performed on tonsils for enlargements which are either physiologic—that is, associated with great changes in development and in the oral cavity—or immunologic and in response to the unaccustomed herd infections of the new environment of school or to the sepsis sometimes resulting from the decay of the primary dentition. The geographic distribution in elementary school children revealed no correlation between the rate of incidence and any factor such as overcrowding, poverty, bad housing or climate. Tonsillectomy, furthermore, is not correlated with the general efficiency of the school medical and dental services and in fact defies any explanation other than that of variation of medical opinion on the indications for operation. Large and in some cases drastic reduction in the numbers of operations performed in elementary school children in certain areas have had no unsatisfactory result. Tonsillectomy is at least three times as common in well-to-do classes as in the poor. But in the public schools (corresponding to our private schools) the picked athletes among the boys are tonsillectomized in exactly the same proportions as the other boys in the schools they represent. These facts, together with the undoubted brilliant results of tonsillectomy in individual cases, have led, Glover believes, toward tonsillectomy in many doubtful cases. The operation is too often performed without adequate cause or sufficient regard to the possibility of enlargement being temporary or due to physiologic or immunologic causes. Furthermore, from the English statistics available the mortality from the operation is larger than is generally appreciated. The bare facts of incidence seem to support the opinion expressed on other grounds by the Schools Epidemic Committee that "it is a little difficult to believe that among the mass of tonsillectomies performed today all subjects for operation are selected with true discrimination, and one cannot avoid the conclusion that there is a tendency for the operation to be performed as a routine prophylactic ritual for no particular reason and with no particular result."

1. Glover, J. Alison: Incidence of Tonsillectomy in School Children, Proc. Roy. Soc. Med. **31**: 1219 (Aug.) 1938.

PRODUCTION OF GONADOTROPIC SUBSTANCE BY PLACENTAL TISSUES

Demonstration by Gey and his colleagues [1] of Johns Hopkins University that test tube cultures of placental cells liberate the gonad stimulating factor resembling "prolan" constitutes the first laboratory confirmation of a currently accepted clinical theory; moreover, their work suggests methods of experimentation presumably applicable to numerous hypothetic or suspected hormones. Most clinicians believe that the placenta produces much if not all of the gonadotropic substance excreted in the urine of pregnancy. Thus far, however, there has been no direct experimental confirmation of this theory. Gey and his colleagues suggested that the postulated placental function might be confirmed by studying the hormonic properties of metabolic products formed by placental cells grown in artificial culture mediums. Two cultures of placental tissues were therefore prepared, one from a three months placenta obtained by hysterectomy, the other from a hydatidiform mole. Fragments of these tissues were grown in roller tubes,[2] the tubes being rotated at a constant speed of twelve revolutions an hour. The supernatant fluid was changed every three or four days. The culture medium selected for these roller tubes consisted of four parts of human cord serum, four parts of chicken plasma and one part each of beef embryo extract and a balanced salt solution. The production of gonadotropic substance by the placental tissues was tested by performing the Aschheim-Zondek test on 21 day old rats, control tests being made with unexposed culture medium or with the same culture medium after three days' exposure to a culture of normal human muscle fibroblasts. In most of their tests the three day supernatant fluid from one or both of the two placental cultures gave positive Aschheim-Zondek reactions, the control tests being uniformly negative. They conclude from this evidence that "placental cells produce a substance similar to the prolan-like substance found in the urine of pregnant women." The cells responsible for this hormonic activity are presumably the Langhans cells. To their surprise parallel tests with the supernatant fluid bathing cultures of human anterior pituitary cells gave negative assays of the gonad stimulating factor. Gey and his colleagues hope to extend their observations to additional material. Since mole and chorionepithelioma tissues are rarely available, they seek cooperation in obtaining a supply of appropriate material.

1. Gey, George O.; Seegar, G. Emory, and Hellman, Louis M.: Science **88**: 306 (Sept. 30) 1938.
2. Gey, George O.: Am. J. Cancer **17**: 752 (March) 1933; **27**: 45 (May) 1936.

ORGANIZATION SECTION

THE PRESIDENT'S MESSAGE ON THE NATIONAL HEALTH PROGRAM

The text of President Roosevelt's message to Congress January 23 proposing a National Health Program follows:

"In my annual message to the Congress I referred to problems of health security. I take occasion now to bring this subject specifically to your attention in transmitting the report and recommendations on National Health prepared by the Inter-Departmental Committee to coordinate health and welfare activities.

"The health of the people is a public concern; ill health is a major cause of suffering, economic loss, and dependency; good health is essential to the security and progress of the nation.

"Health needs were studied by the Committee on Economic Security which I appointed in 1934 and certain basic steps were taken by the Congress in the Social Security Act. It was recognized at that time that a comprehensive health program was required as an essential link to our national defenses against individual and social insecurity. Further study, however, seemed necessary at that time to determine ways and means of providing this protection most effectively.

"In August 1935, after the passage of the Social Security Act, I appointed the Inter-Departmental Committee to Coordinate Health and Welfare Activities. Early in 1938, this committee forwarded to me reports prepared by their technical experts. They had reviewed unmet health needs, pointing to the desirability of a National Health Program, and they submitted the outlines of such a program. These reports were impressive. I therefore suggested that a conference be held to bring the findings before representatives of the general public and the medical, public health, and allied professions.

"More than 200 men and women, representing many walks of life and many parts of our country, came together in Washington last July to consider the technical committee's findings and recommendations and to offer further proposals. There was agreement on two basic points, the existence of serious unmet needs for medical service; and our failure to make full application of the growing powers of medical science to prevent or control disease and disability.

"I have been concerned by the evidence of inequalities that exist among the states as to personnel and facilities for health services. There are equally serious inequalities of resources; medical facilities and services in different sections and among different economic groups. These inequalities create handicaps for the parts of our country and the groups of our people which most sorely need the benefits of modern medical science.

"The objective of a National Health Program is to make available in all parts of our country and for all groups of our people the scientific knowledge and skill at our command to prevent and care for sickness and disability; to safeguard mothers, infants and children; and to offset through social insurance the loss of earnings among workers who are temporarily or permanently disabled.

"The committee does not propose a great expansion of federal health services. It recommends that plans be worked out and administered by states and localities with the assistance of federal grants-in-aid. The aim is a flexible program. The committee points out that while the eventual costs of the proposed program would be considerable, they represent a sound investment which can be expected to wipe out, in the long run, certain costs now borne in the form of relief.

"We have reason to derive great satisfaction from the increase in the average length of life in our country and from the improvement in the average levels of health and well-being. Yet these improvements in the averages are cold comfort to the millions of our people whose security in health and survival is still as limited as was that of the nation as a whole fifty years ago.

"The average level of health or the average cost of sickness has little meaning for those who now must meet personal catastrophes. To know that a stream is four feet deep on the average is of little help to those who drown in the places where it is ten feet deep. The recommendations of the committee offer a program to bridge that stream by reducing the risks of needless suffering and death, and of costs and dependency, that now overwhelm millions of individual families and sap the resources of the nation.

"I recommend the report of the Inter-Departmental Committee for careful study by the Congress. The essence of the program recommended by the committee is federal-state cooperation. Federal legislation necessarily precedes, for it indicates the assistance which may be made available to the states in a cooperative program for the nation's health."

AMERICAN PUBLIC HEALTH ASSOCIATION AND THE NATIONAL HEALTH PROGRAM

The American Public Health Association on January 9 submitted to the Technical Committee on Medical Care its official judgment about the means by which the principles of the National Health Program may be translated into action.

The recommendations of the American Public Health Association were developed by a committee appointed to confer with Miss Josephine Roche, chairman of the Interdepartmental Committee to Coordinate Health and Welfare Activities. The committee met in Washington, D. C., Nov. 19, 1938, at the request of Miss Roche. The committee consisted of Abel Wolman, Dr.Eng., president of the American Public Health Association and professor of sanitary engineering at Johns Hopkins University; J. N. Baker, M.D., Montgomery, Ala.; Louis I. Dublin, Ph.D., New York; A. T. McCormack, M.D., Louisville, Ky.; H. S. Mustard, M.D., New York; J. L. Rice, M.D., New York; F. J. Underwood, M.D., Jackson, Miss., and, exofficio, E. S. Godfrey Jr., M.D., Albany, N. Y., and Reginald M. Atwater, M.D.,

New York. The committee's report has been endorsed and accepted by the American Public Health Association.

In his press release January 9 the executive secretary of the American Public Health Association said:

These recommendations, we believe, agree in most points substantially with the proposals of the Interdepartmental and Technical Committees on the federal-state relationships embodied in the National Health Program, and we agree that the primary federal function is to give financial and technical aid to the states for carrying out approved programs.

Following are the recommendations made by the Association to the Technical Committee:

1. It is certainly theoretically desirable that a single state agency should be made administratively responsible for carrying out all the provisions of the National Health Program which may be enacted into law.

In recommending that this single agency should be the state department of health, we recognize that the present patterns in most states do not conform to this proposal, yet we note evidence that organized medicine and many public welfare officials share our opinion that at least ultimately the state health department should be the responsible agency. We believe that there are many affirmative reasons why the state health department is the best agency at the state level for this purpose. No agency will be able so readily or effectively as the health department to provide professionally qualified personnel and be so readily or effectively able to maintain high professional standards of medical care.

In recommending that the state health department should be the primary integrating and coordinating unit, we recognize that the counsel of qualified advisers from the medical, dental, nursing, hospital and ancillary professions will be requisite, that adequate provisions for technical staffs and administrative expense will have to be made from the outset, and that increased funds for training purposes will be essential for successful performance. We have concluded further that, however reluctant medical health officers may be at present to take over these added responsibilities, a study of the alternative choices for such purposes will be determinative. This basic recommendation does not preclude a working arrangement in some states with existing machinery outside of the official health department which might function well through another channel, provided that the state health officer retains supervisory control over the broad plans and the general purposes of the funds which the state may receive. It is further recommended that in such plans due consideration will be given to the allocation of funds by a state department of health to the various substantial governmental jurisdictions within a state where population, extent of the special problems or financial need justify.

We note that this proposal is in accord with the recommendation of the Interdepartmental Committee that this program should be developed around and be based upon existing preventive health services.

2. The committee reaffirms and reemphasizes the official declaration of the American Public Health Association that, in the initiation and development of the program, wide latitude should be given to the states in the definition of the population to be served, in the selection of the method of providing medical service, and in other important phases of the proposed program. We believe that similar latitude should be provided with regard to the method of raising funds in the states to accomplish approved objectives.

3. The committee finds itself in agreement with the recommendations in the National Health Program that the fundamental objectives involved here are, first, conservation of health and vitality and, second, reduction of the role of sickness as a cause of poverty and dependency. With this in mind, it supports the concept that recommendations 1, 2 and 3 of the Interdepartmental Committee (the expansion of public health and maternal and child health services, the expansion of hospital, clinic and other institutional facilities, and the provision of medical care for the medically needy) should have priority in initiation.

4. We believe that recent experience demonstrates that the Social Security Act provisions for aid to the states for health work provide a suitable framework for the expansion of preventive health services.

5. We submit that it is essential that any state program to be approved for federal aid should contain adequate provisions for the maintenance of high personnel standards and that payment of such federal aid to state agencies should be withheld when it is found that substandard services are being furnished. Similar policy should obtain with respect to state aid to local areas within a state. The appropriate federal administrative authorities should have power to establish minimum standards through rule and regulation after consultation with competent advisory professional bodies.

6. Careful study will be necessary to perfect administrative regulations to cover the details concerned with the provision of medical services, so as to assure a high level of quality. We believe that standards of medical practice should not be written into basic law. Federal aid should be conditioned on inclusion within the state plans of adequate safeguards for maintaining appropriate standards.

7. We believe that the extension and improvement of public health services in general throughout the country require complete integration of health services of the federal government under one cabinet officer, preferably a Secretary of Health.

OFFICIAL NOTES

ANNUAL CONGRESS ON MEDICAL EDUCATION AND LICENSURE

Program of Meetings to Be Held in Chicago, February 13 and 14

The Thirty-Fifth Annual Congress of the Council on Medical Education and Hospitals of the American Medical Association will be held at the Palmer House, Chicago, February 13 and 14. The Federation of State Medical Boards of the United States will participate in the Congress. The program follows:

MONDAY, FEBRUARY 13, 10 A. M.

The Protection of the Public Through the Activities of the Council on Medical Education and Hospitals of the American Medical Association
Ray Lyman Wilbur, M.D., LL.D., Chairman, Stanford University, Calif.

College Education for the Future Doctor
James B. Conant, Ph.D., President, Harvard University, Cambridge, Mass.

The Organization and Subject Matter of General Education
Robert Maynard Hutchins, LL.D., President, University of Chicago.

Canadian Experiments in Medical Economics
T. C. Routley, M.D., LL.D., General Secretary, Canadian Medical Association, Toronto, Ont.

MONDAY, FEBRUARY 13, 2:15 P. M.

The South as Testing Ground for the Regional Approach to Public Health and Public Welfare
Howard W. Odum, LL.D., Director, Institute for Research in Social Science, University of North Carolina, Chapel Hill.

SYMPOSIUM ON THE SMALL HOSPITAL

The Community Hospital
Barry C. Smith, General Director, The Commonwealth Fund, New York.

Organization and Management of the Small Hospital
Malcolm T. MacEachern, M.D., Associate Director, American College of Surgeons, Chicago.

Planning for a Small Hospital
William Henry Walsh, M.D., Consultant Specialist on Hospitals, Chicago.

The Construction of the Small Hospital
Carl A. Erikson of the firm of Schmidt, Garden and Erikson, Architects, Chicago.

TUESDAY, FEBRUARY 14, 9:30 A. M.

The Program of the National Committee for Mental Hygiene
Clarence M. Hincks, M.D., General Director, National Committee for Mental Hygiene, New York.

Fundamentals of Industrial Hygiene
T. Lyle Hazlett, M.D., Professor of Industrial Hygiene, University of Pittsburgh School of Medicine and Medical Director, Westinghouse Electric and Manufacturing Company, Pittsburgh.

The Relation of Anesthesiology to Medical Education
Ralph M. Waters, M.D., Department of Anesthesia, University of Wisconsin Medical School, Madison.

Tenure of Members of the Faculty in Schools of Medicine
Anton J. Carlson, Ph.D., Frank P. Hixon Distinguished Service Professor of Physiology, University of Chicago.

TUESDAY, FEBRUARY 14, 12:30 P. M.

Luncheon meeting, to which all those attending the Congress are invited to attend.

Address: *What the Undergraduate College Should Give the Future Doctor*
William Mather Lewis, LL.D., President, Lafayette College, Easton, Pa.

THE FEDERATION OF STATE MEDICAL BOARDS

MONDAY, FEBRUARY 13, 6:30 P. M.

FEDERATION DINNER

Address: *Recent Impressions of British Medical Education*
Willard C. Rappleye, M.D., Dean, Columbia University College of Physicians and Surgeons, New York.

Address: H. J. Lehnhoff, M.D., President, The Federation of State Medical Boards, Lincoln, Neb.

Round Table Discussion

TUESDAY, FEBRUARY 14, 9:30 A. M.

Does Modern Medical Licensure Procedure Conform to the Accepted Standards of Medical Education?
A. C. Furstenberg, M.D., Dean, University of Michigan Medical School, Ann Arbor.

Examination Results Before Massachusetts State Board of Registration in Medicine
Edward A. Knowlton, M.D., Holyoke; Stephen Rushmore, M.D., Boston.

American Graduates of British Medical Schools
Harold Rypins, M.D., Secretary, New York State Board of Medical Examiners, Albany.

Citizenship and Medical Licensure
J. Earl McIntyre, M.D., Secretary, Michigan State Board of Registration in Medicine, Lansing.

Legal Status of the Intern
Fred E. Clow, M.D., Secretary, New Hampshire Board of Registration in Medicine, Wolfeboro.

TUESDAY, FEBRUARY 14, 2 P. M.

Hospital Intern Service in the United States
Robin C. Buerki, M.D., Director of Study, Commission on Graduate Medical Education, Chicago.

Looking at Health Insurance Abroad
J. George Crownhart, Secretary, State Medical Society of Wisconsin, Madison.

Trends in the Distribution of Medical Care
R. G. Leland, M.D., Director, Bureau of Medical Economics, American Medical Association, Chicago.

Executive Session

RADIO BROADCASTS

The fourth series of programs broadcast in dramatic form portraying fictitious but typical incidents of significance in relation to health by the American Medical Association and the National Broadcasting Company, entitled "Your Health," began Wednesday October 19 and will run consecutively for thirty-six weeks. The program is broadcast each Wednesday over the blue network of the National Broadcasting Company at 2 p. m. eastern standard time (1 p. m. central standard time, 12 noon mountain time, 11 a. m. Pacific time).[1]

These programs are broadcast on what is known in radio as a sustaining basis; that is, the time is furnished gratis by the radio network and local stations and no revenue is derived from the programs. Therefore, local stations may or may not take the program, at their discretion, except those stations which are owned and operated by the National Broadcasting Company.

The next three programs to be broadcast, together with their dates and their topics, are as follows:

February 1. Preventing Epidemics.
February 8. Avoiding Arthritis.
February 15. Healthy Hearts.

1. Owing to program conflicts, there will be no Chicago broadcast of the network program. Instead, a recording of the program will be broadcast over station WENR at 8 p. m. each Wednesday. This recording will be an identical rebroadcast of the network program broadcast earlier the same day.

MEDICAL LEGISLATION

MEDICAL BILLS IN CONGRESS

Changes in Status.—Public hearings will begin Wednesday morning, February 1, at 10 a. m., on social security legislation, in the Ways and Means Committee room of the new House Office Building, Washington, D. C. S. Res. 25 has been agreed to by the Senate, authorizing the Senate Select Committee on Government Organization, created by the Seventy-Fifth Congress, to continue and to have authority to perform the duties and exercise the functions contained in the resolution by which the committee was created.

Bills Introduced.—S. Res. 31, submitted by Senator Sheppard, Texas, proposes to create a Senate Committee on World War Veterans' Legislation, to consist of seventeen Senators. S. 259, introduced by Senator McNary, Oregon, provides service pensions for persons who served ninety days in foreign service under the jurisdiction of the Quartermaster General, Surgeon General of the United States Army, the Secretary of the Navy or the Marine Corps during the Spanish-American War, including the Philippine Insurrection and the Chinese Boxer Rebellion. S. 168, introduced by Senator Nye, North Dakota, proposes to prohibit the importation of dairy products produced from milk or cream other than from cows either accredited free of bovine tuberculosis or under test for bovine tuberculosis. S. 622, introduced by Senator Lodge, Massachusetts, proposes to authorize an appropriation of $1,400,000 to build a new veterans' hospital and diagnostic center at or near Boston. S. 658, introduced by Senator Capper, Kansas, is entitled a bill to aid in alleviating the loss caused by sickness. This bill, identical with a bill introduced by Senator Capper in the Seventy-Fifth Congress, proposes an annual federal appropriation of $200,000,000 to induce the states to develop and maintain adequate systems of health insurance. A federal Health Insurance Board is to be created, it is proposed, to administer the act. State plans must be submitted to this board and receive its approval. A state plan to be acceptable must provide for cash benefits to be paid employees for loss due to disability and for medical benefits for employees, their dependent spouses, and dependent children and other members of their family who are dependent on them and live in the same household. Employees entitled to medical benefits, it is proposed, will be permitted to choose physicians from among a list of those who have agreed to render services under the health insurance plan. A majority of physicians or dentists, respectively, in a given locality who have agreed to furnish medical benefits under the health insurance system may determine the manner in which they are to be paid for their services, being permitted to choose from the following methods: (1) a salary system; (2) a per capita system whereunder payment will be based on the number of persons entitled to medical benefits included in the practitioner's list; (3) a fee system whereunder payment will be based on the extent and character of the treatment given and services rendered by the practitioner to persons entitled to medical benefits, and (4) any combination or modification of the systems hereinabove stipulated. S. 685, introduced by

Senator Barkley, Kentucky, and H. R. 2890, introduced by Representative Bland, Virginia, propose to create in the United States Public Health Service a Division of Water Pollution Control. S. 799, introduced by Senator Pittman, Nevada, and H. R. 2760, introduced by Representative McReynolds, Tennessee, propose to extend the facilities of the United States Public Health Service to active officers of the Foreign Service of the United States. S. 859, introduced by Senator Caraway, Arkansas, proposes to refund to each physician the amount collected from him by the federal government during the period June 1, 1920, to June 30, 1931, for the privilege of prescribing the hot waters from the Hot Springs National Park, provided that no more than $660 shall be refunded to any one physician. H. R. 31, introduced by Representative Cannon, Missouri, proposes to reenact all public laws granting medical and hospital treatment, domiciliary care, compensation and other benefits to veterans and their dependents that were repealed by the Economy Act of March 20, 1933. H. R. 2223, introduced by Representative Connery, Massachusetts, proposes to recognize the high public service rendered by soldiers who volunteered and served in trench fever experiments in the American Expeditionary Forces. H. R. 2292, introduced by Representative Rankin, Mississippi, proposes to direct the Administrator of Veterans' Affairs to furnish outpatient pneumothorax therapy, insulin and liver extract to veterans requiring such treatment or medication notwithstanding that the disease necessitating the treatment may not be directly or presumptively service connected. H. R. 2320, introduced by Representative Rankin, Mississippi, proposes to provide domiciliary care, medical and hospital treatment and burial benefits to persons recognized as veterans of the Spanish-American War, including the Boxer Rebellion and the Philippine Insurrection. H. R. 2404, introduced by Representative Sirovich, New York, proposes to require a surgeon and ship hospital on every steamer of the United States or of any foreign country navigating the ocean and licensed to carry more than twenty-five passengers that leaves or attempts to leave any port of the United States, except steamers between ports of the United States less than 500 miles apart. H. R. 2425, introduced by Representative May, Kentucky, provides that in no event shall any person by reason of wilful misconduct be denied any of the service-connected benefits under veterans' laws, provided such misconduct did not interfere during service with full performance of military or naval duty. H. R. 2646, introduced by Representative Jarman, Alabama, proposes to provide that any veteran shown to have active pulmonary tuberculosis of a compensable degree shall be deemed to be totally disabled for purposes of compensation when hospitalized. H. R. 2650, introduced by Representative Rogers, Massachusetts, proposes to authorize hospital care and treatment for American veterans residing in foreign countries in such manner as the Administrator of Veterans' Affairs shall by regulation prescribe. H. R. 2746, introduced by Representative Pace, Georgia, proposes to authorize an appropriation of $2,500,000 to erect in the southwest section of Georgia a 800 bed veterans' hospital for the accommodation of veterans entitled by law to such facilities. H. R. 2753, introduced by Representative Voorhis, California, proposes to amend the Social Security Act so as to extend its benefits to individuals who are physically disabled. H. R. 2877, introduced by Representative Van Zandt, Pennsylvania, proposes to provide that any person who served in the military or naval forces of the United States during a recognized campaign or expedition, and who was honorably separated from such service, shall be granted hospitalization and domiciliary care by the Veterans' Administration subject to the same restrictions and limitations as are now applicable to World War veterans. H. R. 2892, introduced by Representative Izac, California, proposes to provide that retired personnel of the Army, Navy, Marine Corps, and Coast Guard and Fleet Naval and Fleet Marine Corps reservists requiring hospitalization shall be entitled to enter any Army or Navy hospital on their own request, under the same conditions as are now, or which may hereafter be, fixed for the active service. H. R. 2963, introduced by Delegate Dimond, Alaska, proposes to authorize an appropriation of $2,500,000 to establish a hospital for the insane of Alaska. H. R. 2974, introduced by Representative Voorhis, California, proposes to amend the Social Security Act so as to authorize an appropriation of $7,000,000 annually to assist states, counties, health districts and other political subdivisions of states to provide medical care to nonresident needy persons on the same basis as to resident needy persons. H. R. 2979, introduced by Representative Van Zandt, Pennsylvania, proposes to authorize an appropriation of $2,500,000 to construct in the central Pennsylvania area a veterans' hospital and domiciliary facility for the treatment of general medical and surgical disabilities. H. R. 2985, introduced by Representative Green, Florida, proposes to authorize an appropriation of $2,500,000 to construct in Jacksonville, Fla., a marine hospital. H. R. 2986, introduced by Representative Johnson, Indiana, proposes to repeal the Economy Act of March 20, 1933. H. R. 2988, introduced by Representative Schwert, New York, proposes to provide that in the discretion of the Administrator of Veterans' Affairs, hospital care, including medical treatment, may be furnished to veterans of the World War temporarily sojourning or residing abroad, for disabilities due to war service in the armed forces of the United States.

STATE MEDICAL LEGISLATION

Arizona

Bills Introduced.—H. 3 proposes to require applicants for licenses to marry to present a physician's certificate that they are free from "infectious, contagious, and venereal disease." A physician's certificate must be based on physical examination, tuberculin tests and laboratory reports of microscopic examination or the complement fixation test for gonorrhea, or both, and the blood Wassermann test or Kahn test for syphilis, or both. H. 7 proposes to exempt from the sales tax the proceeds of sales of "medicines purchased through a physician's prescription."

California

Bills Introduced.—S. 130 and A. 493 propose to require a physician or other person attending a pregnant woman to obtain or cause to be obtained a blood specimen at or within ten days after his first professional visit. The blood specimen thus obtained must be submitted to an approved laboratory for a standard laboratory test for syphilis. S. 144, A. 490 and A. 492, to amend the laws relating to vital statistics, propose that a certificate of birth include, in addition to the information now required by law, the following item: "Prenatal examination for syphilis, including period of gestation in months or weeks at which examination was made, and if examination was not made, including reason for not making such examination." S. 173 and A. 106 propose as a condition precedent to the issuance of licenses to marry that each party to a prospective marriage present a physician's certificate that he or she "has been given such examination, including a standard serological test, as may be necessary for the discovery of syphilis, made not more than 30 days prior to the" application, "and that in the opinion of the physician the person either is not infected with syphilis, or if so infected, is not in a stage of that disease which is or may become communicable to the marital partner." A. 235 proposes to exempt from the Use Tax Act of 1935 "The storage, use or other consumption in this State of orthopedic supplies." A. 236 proposes to exempt from the Retail Sales Tax Act of 1933 "the gross receipts from sales of orthopedic supplies." A. 342 proposes to prohibit the issuance of a license to marry unless both parties to the prospective marriage file a certificate made by a physician within ten days of the application showing that both parties are free from any contagious, infectious or communicable disease. A. 437, to supplement the Business and Professions Code, proposes to make it a misdemeanor for any person who does not possess a physician's and surgeon's certificate or a drugless practitioner's certificate to use in any sign or advertisement the term "drugless physician, drugless methods, naturopath, naturopathic physician, sanipractor, masseur, physiotherapist, physical-therapist, diet specialist or health adviser or who uses any degree or the abbreviation relating to or standing for all or any of the foregoing terms." A. 438, to supplement provisions of the Business and Professions Code relating to the practice of medicine, proposes that "The fraudulent representation by advertisement or otherwise that a manifestly incurable condition or sickness, disease, deformity, ailment or injury of any person can be cured

constitutes unprofessional conduct within the meaning of this chapter." A. 449 proposes that on and after July 1, 1940, every applicant for a physician's and surgeon's or drugless practitioner's certificate, or for a certificate to practice chiropody or midwifery must be a citizen of the United States. A. 450 proposes to make the sale, dispensing or prescribing of dinitrophenol for therapeutic purposes a misdemeanor. A. 477, to supplement the Business and Professions Code, proposes that unless a person holds a physician's and surgeon's certificate, or is licensed or authorized to use the title "doctor" or the letters or prefix "Dr.," the use of the title or letters or prefix without further indicating the type of certificate held, constitutes unprofessional conduct. A. 469, to supplement the Business and Professions Code, proposes to make it unprofessional conduct, within the meaning of the chapter relating to medicine, for a licentiate knowingly to make or sign any certificate or other document required by law which falsely represents the existence or nonexistence of a state of facts. A. 478, to amend the Business and Professions Code, proposes that the drugless practitioner's certificate provided for by the code, in addition to the authority it now confers, shall also authorize "the general and local application or use of any and all mechanical, manipulative, electrotherapeutical, hydro-therapeutical, dietary and psychological methods of treating the sick or afflicted for any purpose, including physiotherapy, physical therapy, colonic therapy, all methods of massage, baths, and any and all other types of drugless methods of treatment for the sick and afflicted." A. 484 proposes to authorize courts on the application of the people, the Board of Medical Examiners or the Board of Osteopathic Examiners to restrain the unlicensed practice of medicine or osteopathy.

Connecticut

Bills Introduced.—S. 20, to amend the dental practice act, proposes to make it a cause for the revocation of a license to practice dentistry for the holder to advertise for patronage by means of hand bills, posters, circulars, stereopticon slides or motion pictures. S. 57 proposes to authorize the formation of nonprofit hospital service corporations to establish, maintain and operate plans whereby hospital care may be provided at the expense of such corporations by approved hospitals to subscribers to plans formulated by the corporations.

Georgia

Bills Introduced.—H. 47 proposes to enact a separate naturopathic practice act and to create an independent board of naturopathic examiners. The bill proposes to define naturopathy as "a system of diagnosing and treating the human body by use of natural methods and shall include the following therapeutic measures: Mechanotherapy, hydrotherapy, psychotherapy, phytotherapy, phototherapy, thermotherapy, electrotherapy, biochemistry, and embracing such practices as massage, mineral, thermal, electrical and vapor baths, external applications and dietetics." S. 4 proposes to prohibit the retail sale or distribution of amytal, veronal, luminal or any similar drugs which may have a base or be a derivative from barbital, barbiturates and barbituric acid, except on the written prescription of a licensed physician or dentist.

Idaho

Bill Introduced.—S. 12 proposes to authorize the Department of Health to survey and study the various industrial health hazards of the state, to devise methods for their control, and to provide services to various state agencies, industry, labor, the medical profession and other organizations interested in industrial hygiene.

Kansas

Bill Passed.—S. 13 has passed the senate proposing to prohibit the retail sale or distribution of barbital, sulphonethylmethane (trional), sulfonmethane (sulfonal), diethylsulfon diethylmethane (tetronal), carbromal, paraldehyde and chloral or chloral hydrate or chlorbutanol except on the written prescription of a duly licensed physician, dentist or veterinarian.

Massachusetts

Bills Introduced.—H. 320 proposes to require for all public school pupils to be examined annually to ascertain defects in sight or hearing and other physical defects tending to prevent a pupil from receiving full benefit of school work. The eye and ear examinations are to be made respectively by opthalmologists and otologists. H. 551 proposes that applicants for licenses to marry file with the clerk authorized to issue such licenses a physician's certificate with respect to each party to a proposed marriage that each applicant has been given such examination, including a standard serologic test as may be necessary for the discovery of syphilis, made on a day not more than twenty days prior to the application, and that in the opinion of the physician the person is not infected with syphilis or, if so infected, that the disease is not in a stage whereby it may become communicable. H. 756 and H. 757 propose that after the removal of any limb or organ the operating physician explain to the patient or his representatives the nature and necessity of the operation performed. H. 670 authorizes the department of public health to issue certificates of approval to bacteriologic laboratories and to specify in such certificates what bacteriologic or serologic procedures performed in such laboratory are approved by the department. The bill proposes to define a bacteriologic laboratory as a "place or establishment which is advertised, announced or maintained in whole or in part for the purpose of accepting for and subjecting to bacteriological study or analysis specimens of blood, sputum, urine, feces or other fluids, secretions or excretions of the body of persons ill or suspected of being ill with a disease dangerous to the public health."

New York

Bills Introduced.—A. 130 authorizes municipal corporations to appoint physicians, at an annual compensation of not to exceed $750, to treat indigent persons. Apparently any qualified physician may apply for such appointment and if appointed will be subject to call in the political subdivision in which he resides or maintains his office. S. 130 and A. 175 propose to require every local board of health and every health officer to exercise proper and vigilant inspection of all persons, 21 years of age or over, infected with poliomyelitis and to provide at the remedial stages of the disease suitable surgical, medical or therapeutic treatment or hospital care and necessary appliances and devices for such person so infected or exposed who cannot otherwise be provided for.

South Dakota

Bill Introduced.—H. 10 proposes to require applicants for licenses to practice any form of the healing art, as a condition precedent to examination and licensure by their respective professional boards, to pass examinations in anatomy, physiology, bacteriology, pathology and chemistry to be given by a board of basic science examiners. Members of this board must be full time professors or associate or assistant professors, teaching the subjects of the basic sciences in any university or college in the state accredited by the North Central Association of Secondary Schools and Colleges and must not be actively engaged in the practice of healing or any branch thereof. This bill went to second reading on January 13.

Tennessee

Bills Introduced.—H. 183 proposes to repeal the Chiropody Practice Act adopted in 1931. H. 202 proposes to authorize sexual sterilization of such inmates of state institutions as are insane, feebleminded or epileptic. H. 203 proposes to prohibit county clerks from issuing a license to marry unless both parties to a proposed marriage file a physician's certificate setting forth that each party "is free from venereal diseases so nearly as can be determined by a thorough examination and by the application of recognized clinical and laboratory tests of scientific search [sic], when in the discretion of the examining physician such clinical and laboratory tests are necessary."

Texas

Bill Introduced.—S. 26, to amend the medical practice act, proposes, in effect, to permit persons to apply or use the principles, tenets or teaching of their church in the ministration to the sick or suffering by prayer without the use of any drug or material remedy and to charge fees for so doing.

Utah

Bills Introduced.—S. 34, to supplement the laws relating to the practice of naturopathy, proposes that an applicant for a license to practice naturopathy must (1) be a graduate of a legally chartered naturopathic college, requiring as a prerequisite to graduation at least a four years residence course of instruction of not less than eight and one-half months each year; (2) be a graduate from a four year high school; (3) have completed one year of college work in a college of liberal arts, and (4) must have a course of training of not less than twelve months in a hospital approved by the board of naturopathic physicians or, in lieu thereof, a course of training for a period of twelve months in the office of a licensed naturopathic physician in the state. S. 33, to supplement the laws relating to the practice of naturopathy, proposes to define naturopathy as "the system of treating human ailments by natural methods as taught in naturopathic colleges and includes the following: Mechano therapy, hydro therapy, physic therapy, massage, articular manipulation, swedish movements, phyto therapy, thermo therapy, chromo therapy, vibro therapy, gynocology [sic], mineral baths, electro therapy, x-ray, obstetrics, minor surgery, organo therapy, biochemistry, dietetics, emergency use of anodynes."

Vermont

Bills Introduced.—H. 15 proposes, as a condition precedent to the issue of licenses to marry, that each party to a proposed marriage present a physician's certificate that he or she has been given "such examination, including a standard serological test, as shall be prescribed by the State Board of Health as necessary for the discovery of syphilis" and that in the opinion of the physician each party is not infected with syphilis or, if so infected, is not in a stage of that disease whereby it may become communicable. H. 34 proposes to enact what appears substantially to be the uniform narcotic drug act. The bill proposes to designate as "narcotic drugs" coca leaves, opium, cannabis and every substance neither chemically nor physically distinguishable from them.

Washington

Bills Introduced.—S. 15 proposes to enact a food, drug and cosmetic act to prevent the manufacture, shipment and sale of adulterated or misbranded food, drugs, devices and cosmetics. S. 24 and H. 11 propose to prohibit the retail sale and distribution of amytal, luminal, veronal, barbital, acid diethylbarbituric, para-amino-benzene sulfonamide, sulfanilamide, sulfamidyl, prontylin, prontosil, neo prontosil, neo prontylin, or edimalin, except on the written prescription of a licensed physician, dentist or veterinarian surgeon. S. 39, to amend the narcotic drug act, proposes (1) to define narcotic drugs so as to include dalaudid, cannabis sativa and barbital and (2) to authorize the establishment of state clinics for the treatment and rehabilitation of narcotic addicts.

WOMAN'S AUXILIARY

California

The auxiliary to the San Diego County Medical Society sponsored its fourth public health institute recently. The speakers included Dr. Samuel J. McClendon, on contagious diseases of the school child; Harvey Stallard, D.D.S., "Care of the School Child's Teeth," and Drs. Bryant R. Simpson, Stephen A. Parowski and Rufus A. Schneiders, tuberculosis.

District of Columbia

The educational committee appointed by the auxiliary to place a young woman in a nurses' training school in Washington has selected the Sibley Hospital Training School. Her expenses, including uniforms and equipment, are defrayed by the auxiliary. Mr. Theodore Wiprud, executive secretary of the Medical Society of the District of Columbia, addressed the auxiliary October 5.

New York

The auxiliary to the Rockland County Medical Society and the society arranged a program of movies and lectures on cancer control recently. Three lectures were given by Dr. John M. Swan, executive secretary of the New York State Committee of the American Society for the Control of Cancer, in the high schools of Suffern, Nyack and Haverstraw.

The auxiliary to the Albany County Medical Society met recently at St. Peter's Hospital, Albany. Miss Marguerite Jacobsen, R.N., associate executive secretary of the New York State Nurses Association, spoke on the "New Nurse Practice Act." Plans were made for supplying layettes to the Visiting Nurse Association of Albany.

Pennsylvania

The auxiliary to the Allegheny County Medical Society held a membership rally in Renziehausen Park, McKeesport, September 14. Mrs. David B. Ludwig, president, addressed the group on the aims and accomplishments of the auxiliary, and a talk on socialized medicine was given by Mrs. Joseph P. Dobo.

The auxiliary to the Chester County Medical Society visited Pennhurst State School September 20. Dr. George B. McC. Wilson showed colored motion pictures of the school's activities.

At the tenth annual meeting of the auxiliaries of the Second Councilor District at Norristown Dr. Frederick J. Bishop, president of the Medical Society of the State of Pennsylvania, suggested that a clipping bureau be established to collect all newspaper articles pertaining to the medical profession and that a speakers' bureau be organized.

South Dakota

At a recent meeting of the Seventh District Auxiliary in Sioux Falls, Dr. L. J. Pankow explained the new basic science law which will be voted on at the coming session of the state legislature.

Tennessee

Through the efforts of Mrs. Rogers N. Herbert, Nashville, past *Hygeia* chairman of the Woman's Auxiliary to the American Medical Association, *Hygeia* is being sent to every public elementary and high school in the state of Tennessee, a total of 6,182 schools. The state legislature having appropriated funds for distributing public health literature among the schools, the Woman's Auxiliary in cooperation with the state board of education selected *Hygeia* as the magazine best fitted to be distributed under this appropriation. If any *Hygeia* chairman cares to work along similar lines, she may write to Mrs. Herbert at Franklin Road, Nashville, or to Mrs. James D. Lester, present National Hygeia Chairman, Granny White Pike, Nashville, Tenn.

Texas

At a meeting of the auxiliary to the Henderson County Medical Society at Athens, September 13, Mrs. W. R. Love reviewed "The Citadel."

Socialized medicine was discussed at a meeting of the Jasper-Newton Counties Auxiliary in Kirbyville, September 14.

The auxiliary to the Tarrant County Medical Society entertained the wives of physicians attending the Fort Worth Medical and Surgical Clinics September 7. Seventy-five women were in attendance. The auxiliary held a public relations tea at Fort Worth October 14. Three hundred and fifty women were present. Dr. S. E. Thompson, Kerrville, spoke on socialized medicine. Presidents of women's clubs, parent-teacher organizations and members of the Tarrant County Medical Society were guests at the tea.

The auxiliary to the Taylor-Jones Counties Medical Society at Abilene cooperated with the City Federation of Women's Clubs in preparing an exhibit at the county fair.

MEDICAL ECONOMIC ABSTRACTS

PAID NEWSPAPER ADVERTISING PROPOSED IN NEW JERSEY

At a meeting of the Committee on Public Relations of the Medical Society of New Jersey at Trenton, December 4, the advisability of a paid advertising program for the medical profession of New Jersey was considered.

The committee approved of paid institutional advertising in newspapers to acquaint the public better with the ideals, policies, program and work of the county medical societies in New Jersey. The members of the Committee on Public Relations believe that the question of paid advertising should be decided by each county medical society.

The committee recommends the inauguration of such a program by the county medical societies on a county-wide basis. The public must be told how it benefits from a system of medical practice which is free from coercion and political red tape and how politicalization of medicine will result in a poorer type of medical care for them. This proposed advertising program constitutes no departure from medical ethics. Several of the county medical societies have on occasion advertised in newspapers. What is advocated in this program is the advertising of the institution of the private practice of medicine, not the advertising of the individuals who comprise that institution. It is in keeping with medical ethics to try to preserve the best system of medical care, judged by results, which exists anywhere in the world, and to keep it free from unnecessary political restraints.

Each county can be adequately covered through a selective list of newspapers of large circulation. It is for the body of physicians of New Jersey to decide whether improved public relations, and possibly the future status of medicine itself, is worth to them an annual investment approximating the amount received from one office call.

If the county medical societies approve this suggested advertising program, the committee is prepared to undertake the preparation of advertising copy which will be a credit to the institution sponsoring it from the standpoint of both content and typography.

The Committee on Public Relations of the Medical Society of New Jersey urges that this question be placed on the agenda of county medical societies for its earliest possible consideration. The members of the committee are Drs. Joseph H. Kler, chairman, J. Berkeley Gordon, G. Barton Barlow, Edgar P. Cardwell, Homer I. Silvers and J. Allen Yager.

THE IOWA COOPERATIVE CASE FINDING PROGRAM

The Iowa Tuberculosis Control Service, says Dr. C. K. McCarthy in the *Journal of the Iowa State Medical Society* (**28**:632 [Dec.] 1938), is so planned and so functions that it does not miss the infant, the child of preschool age or the child of school age. It does not miss the teachers or any persons who have had contact with a case of tuberculosis. Most important of all, it places the responsibility for the education of the public not in the public press, not in the hands of enthusiastic but often misinformed laymen but right in the hands of the family physicians who, working in conjunction with especially trained public health nurses, tell the people in the privacy of home or office the things they should know about tuberculosis. Of course the purpose of the program is to find, at the earliest stage possible, those persons who have been infected by tubercle bacilli as a result of close association with an open case of tuberculosis. There are three ways of locating such individuals: through reported morbidity, through reported mortality and through personal contact with the private practitioners. In the final analysis this means that there is only one way—through the doctors. It is they who make the morbidity and mortality reports which constitute the starting point. If physicians failed to do this there would be no starting place. However, Iowa physicians do not fail.

The personnel consists of a clinic director, a supervising nurse, tuberculosis field nurses, an x-ray technician and a clerk. The equipment consists of a portable x-ray machine and an x-ray laboratory. Never under any circumstances does the service attempt to put case finding into execution in a county until the county medical society has invited it to do so. Such an invitation must be made in writing. Furthermore, it cannot be made until after the director or some other staff member has explained the program in detail to the county medical society. It is extremely important that there shall be no misunderstanding on the part of the private practitioners as to just what the state department of health is trying to do. It was made clear that no encroachment was being made on their private practice and no attempt to force on them that specter which at times haunts all good doctors, the specter of state medicine.

The physician receives the sum of one dollar for doing the tuberculin test. This is paid by the department of health and is additional to the regular fee which the patient pays the doctor for examination.

The program has been in operation actually only since December 1937. At the present time the service is averaging a clinic a week. There are four field nurses. County nurses also are available in counties where a full time public health service is in operation, thus making it possible to double the number of surveys being conducted in a given period. Thirty-four clinics have been held since December 1937, at which 2,205 patients have been roentgenographed, all of whom had positive Mantoux tests. It is too early for statistical studies of value. Fifty-seven counties have accepted the service to date. Not a single county that has asked for an explanation of the program has failed to approve it afterward. Primarily the program was intended to serve only those counties of the state having a population of 30,000 or less. There are eighty such counties in the state.

CAUSES OF MATERNAL MORTALITY

The minister of health was asked in the House of Commons recently whether he could make any further report on the effect on maternal mortality of the special foodstuffs granted by the special commissioners through the National Birthday Trust Fund for expectant mothers. He replied that particulars of the results of this nutrition scheme, which was now being carried on by the joint Council of Midwifery, covering the period from July 1 to Dec. 31, 1937, were now available.

They showed that among 4,446 mothers receiving special food the puerperal death rate was 0.45, the maternal death rate from associated causes 0.67, and the infant death rate (stillbirth and neonatal) 54. Among 9,040 mothers not receiving special foods the corresponding rates were 3.54, 1.33 and 83 respectively. When asked what would be the next steps in the experiment, in view of the satisfactory results already achieved, Mr. Walter Elliott said that they had to complete the experiment, for which the special commissioner had given another £3,000 (*Journal of the Royal Institute of Public Health and Hygiene* **1**:572 [July] 1938).

APPARENTLY THEY DON'T WANT IT

At the meeting of the house of delegates of the Medical Society of the State of Pennsylvania, October 3-6, it was reported that Dauphin County organized a County Medical and County Dental Society Bureau directed by an experienced welfare worker and including on its staff a medical-social worker and offered the people of the county a free choice medical or dental service care on a budgeted or partial fee basis, or without any charge if properly certified. Disappointed with the very slight response the bureau, at its own expense, carried advertisements in three daily newspapers and later for ten consecutive weeks a series of advertisements with accompanying explanatory articles in a labor journal of the county reaching 20,000 employed persons. Again the results were negligible.

It is quite apparent that between existing hospitals, dispensaries, clinics, physicians and dentists in private practice, without mentioning other well organized institutions and agencies, the present day sickness needs, both preventive and corrective, of the people of this populous county are being met as those in need of such services will seek and accept them.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION AND PUBLIC HEALTH.)

ADDITIONAL MEDICAL COLLEGE NEWS AND ARTICLES APPEAR IN THE STUDENT SECTION, PAGE 375.

ALABAMA

Personal.—Dr. William E. Bones, formerly of Monteagle, Tenn., has been appointed associate in charge of the division of child hygiene of the state department of health.

Foreign Graduates Must Become Citizens.—At a recent meeting of the state board of censors of the Medical Association of the State of Alabama, sitting as a board of medical examiners, it was voted that after January 1 full citizenship papers in the United States will be required of any applicant who is a graduate of a European medical school seeking a certificate of qualification to practice medicine in Alabama.

ARKANSAS

Dental Health Program.—The Arkansas State Board of Health has employed fifteen dentists on part time who will conduct dental health programs in fifteen counties having full time health units, according to the *Health Officer*. These dentists will be part of the health department staff working under the supervision of the county health officer.

District Meetings. — At the semiannual meeting of the Third District Medical Society in Marianna recently "Differential Points in the Diagnosis of Angina Pectoris and Coronary Occlusion with Therapeutic Indications of Each" were reviewed by Dr. William C. Colbert, Memphis; "Pollen Therapy in Allergic Diseases" was described by Dr. Irwin W. Barrett, Clarksdale, Miss., and "Chest Conditions in Children" were considered from the medical point of view by Dr. Walker L. Rucks, Memphis, and from the x-ray aspect by Dr. Horace D. Gray, Memphis.——The First Councilor District Medical Society recently held its seventy-second semiannual meeting in Jonesboro. Dr. Martin E. Blanton, Jonesboro, showed motion pictures of the eyes; Dr. Charles D. Tibbels, Black Rock, spoke on puerperal eclampsia, and Dr. Edward R. Barrett, Jonesboro, "Amebiasis in Our District."

CALIFORNIA

Rabies Quarantine.—The state department of health placed a rabies quarantine on Santa Clara County, December 16, with the exception of Palo Alto and San Jose. An order issued Nov. 19, 1937, had covered a portion of the county, but because of the spread of the disease it became necessary for a later order to quarantine the entire area.

Gift for Metabolic Research.—A gift of $50,000 has been received by the Scripps Metabolic Clinic, La Jolla, from Mrs. Harry W. Child, Helena, Mont., to be known as the Harry W. Child Memorial Fund. The income from this fund is to be devoted to metabolic research. Mr. Child, formerly president of the Yellowstone Park Transportation Company, died of diabetes in 1932.

Society News.—The Alameda County Medical Association devoted its meeting January 16 to a round table discussion on newer concepts and procedures in tuberculosis; the speakers were Drs. Henry Chesley Bush, Livermore, chairman; Charles A. Dukes, Joseph Lloyd Eaton, Sumner Everingham, Paul C. Samson, Harold G. Trimble and Marshall B. Tucker, Oakland, and Clifford V. Mason, Livermore.

CONNECTICUT

Dr. Abell Addresses State Society. — Dr. Irvin Abell, Louisville, Ky., President of the American Medical Association, was the guest of the Connecticut State Medical Society at a dinner January 21 in New Haven; he discussed socialized medical developments.

Changes in Health Officers.—Dr. Walter S. Lay has been appointed health officer of Hamden. Dr. Josephine Evarts, Cornwall Bridge, has been appointed health officer of Kent, and Dr. Reuben Rothblatt, acting health officer of Willimantic, filling the vacancy caused by the resignation of Dr. Nathan M. Spector. Dr. Howard G. Stevens, New Milford, has been appointed health officer of Sherman.

DISTRICT OF COLUMBIA

Society News.—A symposium on disorders of the kidney in childhood was presented by the section on pediatrics before the Medical Society of the District of Columbia January 18; the speakers included Drs. Edgar P. Copeland, John H. McLeod, E. Clarence Rice Jr., Hugh J. Davis and Charles P. Howze. Drs. Lawrence Kolb, Washington, and Dexter M. Bullard, Rockville, Md., participated in a symposium on narcotic addiction before the society January 11.——Ellsworth Huntington, research associate in geography, Yale University, New Haven, discussed "Effect of Climate and Weather on Human Health and Efficiency" before a meeting of medical and dental officers of the navy on duty in the District and vicinity December 5.

Annual Graduate Clinic at George Washington University.—The seventh annual graduate clinic of the George Washington University School of Medicine will be held February 18. On the same date the annual banquet and alumni reunion of the medical school will be held at the Mayflower Hotel with Dr. Roy R. Kracke, professor of bacteriology and pathology, Emory University (Ga.) School of Medicine, as the principal speaker. Those who will present papers on the clinic program include:

Dr. Charles S. White, The Establishment of a Blood Bank.
Dr. Francis R. Hagner, Torsion of the Spermatic Cord.
Dr. Custis Lee Hall, The Smith-Petersen Nail in Intracapsular Fractures of the Hip.
Dr. George B. Roth, An Analysis of the Proprietary Tragedy—Elixir of Sulfanilamide.
Dr. Albert J. Sullivan, Medical Management of Peptic Ulcer.
Drs. Theodore J. Abernethy and Harry F. Dowling, Use of New Chemotherapeutic Agents in the Treatment of Lobar Pneumonia.
Dr. Walter A. Bloedorn, Popular Misconceptions in the Management of Patients with High Blood Pressures.
Dr. Paul Padget, Baltimore, Treatment of Tabes Dorsalis: Review of 900 Cases.
Dr. Joseph F. Elward, Roentgen Therapy in Puerperal Mastitis.

Members of the District of Columbia Medical Society, members of medical societies of neighboring states and officers of the army, navy, veterans' administration and the U. S. Public Health Service are invited.

GEORGIA

Changes in Health Officers.—Dr. Thomas H. D. Griffitts, director of the Henry R. Carter Memorial Laboratory of the U. S. Public Health Service, Savannah, has been appointed acting city health officer, filling the vacancy created November 3 by the deaths of both Dr. Victor H. Bassett, health officer, and his assistant, Dr. Alfred Larson.——Dr. Dudley A. Reekie, Louisville, Ky., field director of county health work in Kentucky, has been appointed assistant city health officer of Atlanta, it is reported.——Dr. Thomas W. Collier, Lyons, has resigned as health commissioner of Toombs County to engage in the private practice of medicine in Port Arthur, Texas.

Special Society Meetings.—At the first annual meeting on Sea Island Beach recently the Georgia Industrial Surgeons Association was addressed by Dr. Robert Drane, Savannah, on "Importance of the X-ray in Industrial Work"; Dr. Lonnie W. Grove, Atlanta, "Organization of a Medical Service in Industry"; Mr. A. B. Robertson, Atlanta, "The Problem of the Claim Men," and Mr. J. H. Allen, president of the Union Bag and Paper Company, "The Employers' Interest in Industrial Practice." Officers are Drs. Cornelius F. Holton, Savannah, president; Robert L. Rhodes, Augusta, vice president, and John W. Simmons, Brunswick, secretary-treasurer.——The Georgia Pediatric Society held its annual meeting in Augusta January 12. The guest speakers included Drs. Charles Hendee Smith, New York; Alexis F. Hartmann, St. Louis, and Thomas B. Cooley, Detroit.

ILLINOIS

Health Week in Moline.—The week of February 6 has been designated "health week" in Moline. A public meeting will be held February 9 with Dr. August Henry Arp, mayor, presiding. Dr. Albert C. Baxter, Springfield, acting state health director, will speak on "The Meaning of a Public Health Department to a Community." The observance was instigated by the Y. M. C. A. in cooperation with local medical societies, clubs and schools.

Memorial to Physician. — A boulder and plaque were unveiled on the grounds of the Schmitt Memorial Hospital, Beardstown, recently, in honor of the late Dr. Frederick Ehrhardt. The inscription on the plaque reads "This site was donated to Beardstown for a hospital in memory of Dr. Frederick Ehrhardt by his heirs." Dr. Ehrhardt graduated in medicine at the University of Göttingen, coming to

America in 1846. He practiced in Baltimore a year before coming to Beardstown. He died in 1881. Dr. Ehrhardt was the original owner of the site given to the city for the hospital, which was dedicated in 1931.

Chicago

The Bacon Lectures.—Dr. Walter Schiller, director of laboratories, Cook County Hospital, will deliver the Charles Sumner Bacon Lectures for 1938-1939 in the Medical and Dental College Laboratories Building, University of Illinois College of Medicine, February 15-16. His subjects will be "Endometrioma and Endometriosis" and "Congenital and Acquired Sex Changes."

Private Physicians Carry on Syphilis Testing Program.—Under a plan adopted January 10 by the council of the Chicago Medical Society with the approval of Dr. Robert A. Black, acting president of the board of health, private physicians will replace physicians of the board of health in the city's syphilis testing program, it is reported. In the future, persons will be asked through educational pamphlets and lectures to go to private physicians for physical examinations, including a syphilis test, the examinations for indigents to be free. Heretofore, health department physicians went into high schools, factories and neighborhood stations to make mass tests of all volunteers. In 1938 over 140,000 tests were made.

Society News.—A symposium on disturbances of adolescence was presented before a joint meeting of the Chicago Medical and Pediatric societies January 11; the speakers were Drs. Edward D. Allen, Paul L. Schroeder, Chicago, and Elmer L. Sevringhaus, Madison, Wis. At a joint meeting of the Chicago Medical Society with the Chicago Roentgen Society January 18 Dr. Byrl R. Kirklin, Rochester, Minn., spoke on "Value of Roentgen Diagnosis as It Pertains to the Physician in General Practice," and Bernard P. Widmann, Philadelphia, "X-Ray, Radium and Cancer."——O. C. Durham discussed "Inhalant Allergens in the Upper Air" before the Chicago Society of Allergy January 16 and Dr. Franz Alexander, "Psychogenic Factors in Clinical Allergy."——Dr. Daniel B. Kirby, New York, addressed the annual meeting of the Chicago Ophthalmological Society January 16 on "The Surgery of the Exophthalmos."——At a meeting of the Chicago Neurological Society January 19 Drs. Theodore T. Stone and Alex J. Arieff spoke on "Temporal and Maxillary Osteomyelitis with a Report of Two Cases of Multiple Cranial Nerve Paralysis and Diabetes"; John Martin, "Studies of Ventricular Casts Made in Cases of Intracranial Tumor," and Leo M. Davidoff, Brooklyn, "Newer Aspects in Diagnosis by the Aid of Pneumoencephalography."

IOWA

Epidemic of Tularemia.—More than five times as many cases of tularemia were reported to the state department of health in November and December 1938 as in any previous year on record, according to the state medical journal for January. The distribution by counties of 100 cases of tularemia thus far reported officially is Appanoose twenty-two, Black Hawk one, Clarke one, Clinton two, Dallas one, Davis five, Decatur five, Des Moines seven, Henry two, Iowa one, Jefferson one, Johnson one, Keokuk one, Lee nine, Louisa four, Lucas four, Mahaska one, Marion three, Marshall two, Monroe two, Muscatine two, Polk seven, Ringgold one, Scott four, Van Buren one, Wapello four, Warren two, Washington three and Wayne one. It is noteworthy that with the exception of Black Hawk County no cases have been reported in the northern half of the state.

KENTUCKY

Society News.—Dr. Edward J. O'Brien, Detroit, addressed the Jefferson County Medical Society December 5 under the auspices of the Louisville Tuberculosis Association on "Surgical Treatment of Pulmonary Tuberculosis."——Drs. Eslie Asbury, Cincinnati, and William O. Johnson, Louisville, addressed the Bourbon County Medical Society, Paris, recently on "Hip Fractures" and "Endocrinology" respectively.

Meeting of Psychiatrists.—Dr. Floyd K. Foley, Lexington, was chosen president-elect of the Kentucky Psychiatric Association at its second annual meeting in Lexington December 9-10 and Dr. S. Spafford Ackerly, Louisville, was installed as president. Dr. Lieuen M. Rogers, Lexington, was elected vice president and Dr. Robert H. Felix, Lexington, secretary. Among the speakers were Drs. Seymour D. Vestermark, Lexington, on "Psychiatric Needs of General Practice and of the General Hospital"; John W. Cronin, Lexington, "Management of Head Injuries in Relation to the Prevention of Mental Disorder," and William K. Keller, Louisville, "Occupational Therapy in the Treatment of the Mentally Disordered." A mental hygiene session open to the public was held Saturday afternoon with Dr. William E. Gardner, Louisville, as chairman. The annual dinner was held Saturday evening with Frank L. McVey, L.H.D., president of the University of Kentucky, as the speaker on "The Contribution of Culture to Healthful Living."

LOUISIANA

In Memory of Dr. Pierson.—A picture of the late Dr. Clarence Pierson, Pineville, was recently placed in the room of medicine of the Cabildo, Louisiana State Museum, New Orleans; the inscription reads "Dr. Clarence Pierson, Scientist, Builder, Humanitarian, 1868-1934." Dr. Pierson graduated from the Tulane University of Louisiana Medical Department, New Orleans, in 1894. He at one time served as medical superintendent of the Central Louisiana State Hospital, Pineville, which he founded, and the East Louisiana State Hospital, Jackson. He also served as special consultant to the three eleemosynary institutions: the two already mentioned and the State Colony and Training School, Alexandria. He was a member of the House of Delegates of the American Medical Association, 1919-1920, and at one time president of the Sixth Councilor District of the Louisiana State Medical Society.

Graduate Seminar.—The Graduate School of Medicine of Louisiana State University Medical Center, cooperating with the general extension division of the state university, conducted a seminar at the Lafayette Charity Hospital, Lafayette, December 2-3. The speakers included:

Dr. George W. McCoy, New Orleans, Preventive Medicine with Special Reference to Medical Practice.
Dr. Charles J. Bloom, Foods for Infants.
Dr. Isidore Cohn, Masses in the Neck.
Dr. Charles A. Bahn, Recent Ophthalmic Advances for Practicing Physicians.
Dr. James K. Howles, Some of the More Common Skin Conditions Encountered by the General Practitioner in This Vicinity: Their Diagnosis and Treatment.
Dr. Henry W. E. Walther, Diagnosis and Treatment of Prostatic Disease.
Dr. Daniel N. Silverman, Diagnosis and Treatment of Common Types of Diarrhea.
Dr. Ben R. Heninger, Some Modern Concepts of Heart Disease.
Dr. John F. Dicks, Treatment of Sterility.
Dr. Valentine H. Fuchs, Ear, Nose and Throat Conditions Met by the General Practitioner.
Dr. Thomas B. Sellers, Office Gynecology.

MASSACHUSETTS

Personal.—Dr. Paul I. Yakovlev, Waltham, has been appointed clinical director of the Walter E. Fernald State School, Waverley.——Edward M. East, Ph.D., professor of genetics, Harvard University, died November 9 in Massachusetts General Hospital, Boston. He was the author of "Mankind at the Crossroads" and "Heredity and Human Affairs."——Dr. William E. Hines, Hingham, has been appointed medical examiner of the fifth Plymouth district, succeeding Dr. John G. Sweeney. The district includes Hingham, Nantasket and Hull.

Public Lectures.—A series of free public lectures on medical subjects was begun January 8 by the faculty of Harvard University Medical School, Boston, to end March 19. The speakers include:

Dr. Leroy D. Fothergill, January 8, The Menace to Human Beings of Disease in Domestic Animals.
Dr. Clarence Guy Lane, January 15, The Skin—What It Does and the Care It Needs.
Dr. Tracy B. Mallory, January 22, Cancer.
Dr. James J. Durrett, Washington, D. C., U. S. Food and Drug Administration, January 29, Food and Drugs—Safe and Unsafe.
Dr. Harold M. Teel, February 5, Health and Hygiene During Pregnancy (for women only).
Dr. Henry N. Pratt, February 12, Asthma—Hay Fever.
Dr. William C. Quinby, February 19, the Significance of Syphilis and Other Venereal Diseases.
Dr. Vernon P. Williams, February 26, Nervous Breakdowns.
Dr. S. Burt Wolbach, March 5, Vitamin Deficiencies.
Dr. Timothy Leary, March 12, Hazards in the Modern Home.
Dr. Robert B. Osgood, March 19, Chronic Rheumatism.

MICHIGAN

Graduate Fellowship at Butterworth Hospital.—James Rowland Lowe, president of the board of trustees of Butterworth Hospital, has created a fellowship in memory of his parents, Edward and Susan Lowe, carrying with it a cash prize of not less than $500 for graduate study by members of the medical staff who have shown increased proficiency in diagnosis and in medical or surgical treatment and fulfil other stipulations. Recipients of the award, to be known as the Edward and Susan Lowe Fellowship, must agree to expend it within one year in defraying expenses of graduate study out-

side Grand Rapids and must consult and abide by the recommendations of the staff executive committee of the hospital as to the best method of utilizing it. On his return to the hospital the holder of the fellowship is to share with the staff the knowledge he has gained by a review of his experience before a general staff meeting and other means. First award of the fellowship may be made this month.

Secretaries' Conference. — The Michigan State Medical Society held its annual county secretaries' conference at the Hotel Olds, Lansing, January 15. The speakers included:

Dr. Louis Fernald Foster, Bay City, secretary, state medical society, Michigan's Group Hospitalization and Medical Care Plans.
Dr. Harold A. Miller, Lansing, chairman, legislative committee of the state society, Our Legislative Forecast.
Mr. Lee White, Detroit *News*, Detroit, The Physician in the Press and on the Air.
Mr. Joe W. Savage, Charleston, secretary, West Virginia State Medical Association, The Duties of a 100 Per Cent County Secretary.

Vernon J. Brown, Mason, auditor general of Michigan, representing the governor, addressed the luncheon session on "The Affairs of State."

Society News.—Dr. Russell L. Haden, Cleveland, discussed "Treatment of Anemias" before the Calhoun County Medical Society, Battle Creek, January 3.——Dr. Kellogg Speed, Chicago, addressed the Genesee County Medical Society in Flint January 11 on the management of fractures.——Dr. Lealdes M. Eaton, Rochester, Minn., discussed "Pain Characteristic of Various Neurologic Disorders" before the Kalamazoo Academy of Medicine January 17. —— Physicians in Van Buren County are organizing a county medical society.——Dr. Paul A. O'Leary, Rochester, Minn., discussed "Neurosyphilis and Its Treatment" before the Detroit Dermatological Society January 16.——Dr. George E. Rockwell, Cincinnati, as the guest speaker, discussed "The Value of Oral Pollen Therapy" before the Michigan State Allergy Society in Bay City recently. Dr. Buenaventura Jimenez, Ann Arbor, is president of the society and Dr. George L. Waldbott, Detroit, secretary. Five meetings will be held during the coming year, three of which will be in Ann Arbor. —— At a meeting of the Muskegon County Medical Society in Muskegon January 20 Dr. Harry E. Mock, Chicago, spoke on head injuries.

MINNESOTA

Forum on Government in Medicine. — The Minnesota State Medical Association sponsored a forum on government in medicine at the St. Paul Hotel, St. Paul, January 14. The speakers included Mr. J. George Crownhart, executive secretary of the State Medical Society of Wisconsin, Madison, and Drs. Gilbert G. Cottam and William A. O'Brien, Minneapolis.

Personal. — Dr. Len L. Culp, Minneapolis, was recently voted life membership in the Fort Wayne, Ind., Medical Society.——Dr. Frederick P. Arny, Preston, has been appointed coroner of Fillmore County. —— Dr. Charles F. McComb, Duluth, eight times elected coroner of St. Louis County, retired January 1. He is 81 years of age. Dr. John W. Ekblad was chosen to succeed him. Dr. McComb was president of the Minnesota State Medical Association in 1888, was the first president of the Interurban Academy of Medicine and was twice president of the St. Louis County Medical Society. He has practiced in Duluth since 1883.

Society News.—The Minnesota Pathological Society was addressed January 17 by Drs. J. Grafton Love, Rochester, and Lawrence Berman, Minneapolis, on "Protrusion of the Intervertebral Disks" and "An Extragenital Chorionepithelioma" respectively. Elvin C. Stakman, Ph.D., professor of plant pathology, University of Minnesota Medical School, discussed "Virus Diseases of Plants" before the society November 15. ——The Minnesota Academy of Medicine was addressed in St. Paul December 14 by Drs. Robert G. Green on "Filtrable Viruses in Relation to Tumors and Malignant Growths" and Ernest M. Hammes, "Recent Progress in Neurology and Psychiatry."——The Minneapolis Surgical Society was addressed January 5, among others, by Drs. Donald C. MacKinnon on "Carcinoma of the Pancreas" and Robert G. Allison, "Radiation Therapy in Tumors."

MISSISSIPPI

Changes in Health Officers.—Dr. Benjamin F. Hand Jr., Greenville, has been appointed health officer of Washington County, it is reported. Dr. Littleton H. Eubanks, Lexington, assistant health officer in Lauderdale County, has been appointed in charge of the unit in Holmes County. Dr. John H. Hines, Atlanta, Ga., has succeeded Dr. Eubanks in Lauderdale County. Dr. Thomas Lon Owings, Poplarville, is acting health officer in Pearl River County to relieve Dr. Ransom J. Jones, health officer, who is on leave of absence for study at Johns Hopkins University, Baltimore. Dr. Robert A. Clanton, Grenada, has been appointed health officer of Grenada County, succeeding the late Dr. Thomas J. Brown.

NEW JERSEY

Lectures on Dermatology.—A graduate course on dermatology for the general practitioner will be offered by the Bergen County Medical Society continuing each Thursday from February 2 to March 9 at Hackensack Hospital, Holy Name Hospital, Teaneck, and Englewood Hospital. The lecturers will be:

Dr. Richard J. Kelly, New York, Management of Acne and Seborrhea.
Dr. Elias William Abramowitz, New York, Drug Eruptions.
Dr. Leslie Paxton Barker, New York, Cutaneous and Mucous Membrane Manifestations of Syphilis.
Dr. George Clinton Andrews, New York, Diagnosis and Treatment of Precancerous Eruptions.
Dr. Howard Fox, New York, Diagnosis and Treatment of Common Diseases of the Skin in Childhood.
Dr. George M. Lewis, New York, Diagnosis and Treatment of Common Fungous Infections.

NEW YORK

Society News.—Dr. Everett D. Kiefer, Boston, addressed the Dutchess County Medical Society January 11 in Poughkeepsie on "Functional Disorders of the Gastrointestinal Tract." —— Dr. Alexander D. Langmuir, assistant director of the bureau of pneumonia control in the state department of health, Albany, addressed the Broome County Medical Society, Binghamton, January 10 on "Higher Types of Pneumonia."—— Drs. Earle E. J. Mack and Arthur E. Harris, Syracuse, addressed the Onondaga County Medical Society, Syracuse, January 3 on "Infectious Mononucleosis" and "Filtrable Virus Diseases" respectively.——Dr. Alvan L. Barach, New York, addressed the Utica Academy of Medicine December 15 on "Advance in the Therapeutic Use of Oxygen, Helium and Positive Pressure."

Pneumonia Institute in Buffalo.—The Medical Society of the State of New York and the bureau of pneumonia control of the state department of health will sponsor an institute on pneumonia at the Buffalo City Hospital February 16, under the auspices of the Medical Society of the County of Erie. In the morning the following program will be presented:

Dr. Edward C. Reifenstein, Syracuse, Early Clinical Diagnosis of Pneumonia.
Dr. George M. Mackenzie, Cooperstown, Bacteriologic Diagnosis of Pneumonia.
Dr. Jesse G. M. Bullowa, New York, Serum Treatment of Pneumonia.
Dr. David D. Rutstein, Albany, The New York State Pneumonia Control Program.

In the afternoon there will be a panel discussion by the four speakers with questions from the floor and practical demonstrations of the technic of serum administration.

Legislative Committee Recommends Study of Health Insurance Before Action.—The New York State Temporary Commission to Formulate a Health Program, a committee of the state legislature, in a preliminary report adopted January 11 recommended that legislative action on a health insurance plan be postponed for another year while a broad and thorough study of the subject is being made. Eight recommendations on which action will be pressed during this session of the legislature were adopted for inclusion in the preliminary report of the commission. Briefly these are:

Establishment of therapeutic and diagnostic tumor and cancer clinics and of a plan to make state owned radium available to approved institutions for treatment.
Extension of public health education on a broad base to include full information on the availability of health and medical facilities and services.
Encouragement of sound voluntary health and medical insurance schemes with ample provisions for record keeping and current analyses to provide the actuarial soundness of the different plans as a basis for future planning.
Provision for uniform record keeping and reporting of municipal expenditures for public health.
Expansion of public health and school nursing facilities.
Expansion of county laboratory systems or approval of existing laboratories to make diagnostic facilities available.
Amendment of the public welfare law and necessary additional appropriations to provide state aid for maternity cases.
Establishment of informal interdepartmental committees to coordinate health, welfare and curative services conducted by various state and local divisions.

The commission recently held a public hearing in New York to obtain a cross section of opinion on the public health needs of the state. At its meeting in Albany Assemblyman Lee B. Mailler of Orange County was elected chairman, Senator Joe R. Hanley of Wyoming County vice chairman and Assemblyman Robert F. Wagner Jr. reelected secretary.

New York City

Scholarships Available for Graduate Study.—The New York Post-Graduate Medical School, Columbia University, announces that it has a scholarship fund available for qualified graduates in medicine who wish to take graduate courses at the school. By the terms of the endowment, applicants from Allegheny County, Pa., are given preference, other circumstances being equal. For information and application forms address the Director, New York Post-Graduate Medical School and Hospital, 303 East Twentieth Street, New York.

Illegal Practitioners Convicted.—Two men pleaded guilty in the court of special sessions recently of practicing medicine without licenses. Earl H. Weidling, Ozone Park, Queens, a second offender, was sentenced to three years in the penitentiary. Fake medical licenses, diplomas and certificates and a physician's automobile license plate were found in his home. J. Augustin Bombard, said to be a chiropractor, paid a fine of $100 after admitting that he had written a prescription for a woman detective and charged her a large fee for diagnosing her pretended ailment as "knotted nerve ends."

Official Tribute to Private Practitioners.—The Council of the City of New York at a meeting December 20 adopted a resolution of "recognition of the part played by the seven thousand physicians of the city of New York for protection of the public health." The resolution declared that "emphasis is laid on the city work in reducing mortality and sickness through units sponsored by the city with a woful disregard of the part played by the general practitioner." Finally it urged that the council "take official cognizance of the great part played by the forgotten 7,000 private practitioners in this city in the reduction of sickness, disease and the death rate and deplore any attempts which may be made to minimize their great contributions."

Gifts to New York University.—Among gifts and bequests to New York University for medical purposes recently announced by Chancellor Harry Woodburn Chase were the following:

The de Long Corporation for the cardiac clinic fund under the direction of Dr. Clarence E. de la Chapelle, college of medicine, $12,000.
The Commonwealth Fund, for research in gynecology and obstetrics under Dr. William E. Studdiford Jr., college of medicine, $8,299.87; also $7,250 on account of grant to the department of preventive medicine.
Rockefeller Foundation, on account of grant for studies on influenza under Dr. Thomas Francis Jr., college of medicine, $6,500.
Merck and Company, Inc., for research on anesthesia under Dr. Emory A. Rovenstine, $1,500.
Lucius N. Littauer, for studies on pneumonia under Dr. Jesse G. M. Bullowa, college of medicine, $1,500.
Phi Delta Epsilon fraternity, to increase the Dean John Wyckoff lectureship endowment fund, college of medicine, $1,500.
Friedsam Foundation Inc., for research in the department of urology under Dr. Meredith F. Campbell, $1,500.
Lederle Laboratories, for the Lederle Fund, college of medicine, $1,250; for the prophylaxis fund under Dr. Charles Hendee Smith, department of pediatrics, $1,050, and for the first quarterly payment of grant for research in pneumonia under Dr. Bullowa, $1,000.
Carroll Dunham Smith Pharmacal Company, for research in therapeutics under Dr. Arthur C. De Graff, $1,100.
International Cancer Research Foundation, for research in cancer under Robert Chambers, Ph.D., department of biology, Washington Square College, $1,000.

NORTH CAROLINA

Hospital News.—St. Joseph's Sanatorium, Asheville, has been remodeled to care for general medical and surgical patients and will now be known as St. Joseph's Hospital. The building has four floors; two have been reserved for tuberculous patients. Obstetric patients will not be received at present. There will be ninety-six beds.

CCC Pneumonia Patients Receive Serum.—The North Carolina State Board of Health reports that CCC enrollees and soldiers at Fort Bragg are hospitalized, their blood is typed and specific serum is administered when indicated. If the serum is not available at the hospital where the patient is undergoing treatment, arrangements have been made to obtain it from a distributor in Raleigh, it was said. In case of emergency, airplane transportation will be used for isolated and distant hospitals and stations.

University Extension Course.—A six weeks graduate course in medicine opened in Durham January 11 to be given on successive Wednesdays. Dr. Alfred Stengel, Philadelphia, gave the first lecture, on "Diagnostic Problems of the Abdomen," and the remainder of the series is as follows:

Dr. Paul D. White, Boston, Late Heart Disease.
Dr. Maurice C. Pincoffs, Baltimore, Blood Dyscrasias.
Drs. Baldwin H. E. W. Lucke and Francis C. Wood, Philadelphia, a clinicopathologic conference.
Dr. Joseph Stokes Jr., Philadelphia, Respiratory Infections.
Dr. Loyal Davis, Chicago, Surgical Problem of the Treatment of Hypertension.

OREGON

Personal.—Dr. Charles L. Coyle, formerly of Marshfield, has resigned as health officer of Coos County to engage in private practice in Grants Pass.——Dr. Daniel C. McDonald, Hillsboro, has resigned as health officer of Washington County; Dr. Richard N. Sherwin, St. Helens, succeeded him.

Society News.—Dr. Robert E. Mullarky, Seattle, addressed the Central Willamette Medical Society, Corvallis, November 3, on "Peritoneoscopy."——Drs. Laurence Selling and John E. Raaf, Portland, discussed "Herniation of the Nucleus Pulposus and Hypertrophy of the Ligamentum Flavum" at a meeting of the Multnomah County Medical Society January 18. Dr. Ralph A. Fenton, Portland, made the introductory remarks for a motion picture on "Hygiene of Swimming." At the January 4 meeting Dr. Herbert Minor Nichols, Portland, presented a paper on "Appendicitis: A Statistical Study Showing the Value of Early Operation" and Dr. John G. Cheetham, Portland, "A Study of the Newer Agencies Used in the Treatment of Gonorrhea, with Special Reference to Sulfanilamide and to Hyperpyrexia."

PENNSYLVANIA

Society News.—Dr. William A. Womer, New Castle, addressed the Lawrence County Medical Society, New Castle, January 5, on "Ten Years of Syphilis: A Socio-Economic Study."——Dr. Maxwell J. Lick, Erie, addressed the York County Medical Society at its annual banquet in York January 12 on "Medical Fads and Fancies."——Dr. William Wayne Babcock, Philadelphia, addressed the Lycoming County Medical Society, Williamsport, January 13, on "Recent Trends in Surgical Practice."

Philadelphia

Annual Oration in Urology.—Dr. Gilbert J. Thomas, clinical associate professor of urology, University of Minnesota Medical School, Minneapolis, delivered the B. A. Thomas Annual Oration of the Philadelphia Urological Society January 17 on "Changing Concepts of Urogenital Tuberculosis."

Director of Health Appointed.—Dr. Charles F. Nassau, clinical professor of surgery, Jefferson Medical College, has been appointed director of public health of Philadelphia to succeed Dr. William C. Hunsicker, who died January 10. Dr. Nassau, 71 years old, graduated from the University of Pennsylvania School of Medicine in 1891 and Jefferson Medical College in 1906. He is chief surgeon at Frankford Hospital, surgeon to St. Joseph's Hospital and Girard College and assistant surgeon to Jefferson Hospital.

Society News.—Dr. Herbert Fox, among others, addressed the Pathological Society of Philadelphia January 12 on "Primary(?) Tuberculosis of the Spleen: Inclusions in Giant Cells in Tuberculosis(?) of the Spleen."——At the annual meeting of the Philadelphia Pediatric Society January 10 Drs. Irving J. Wolman, Rachel Ash and Ralph S. Bromer spoke on "Diagnosis of Congenital Cardiac Defects in Infancy" and Dr. Bernard L. Kahn, on "Congenital Ectodermoses in Infancy and Childhood."——Drs. John F. McCloskey and James A. Lehman addressed the Philadelphia Academy of Surgery January 16 on "Living Fascial Suture in the Repair of Large Inguinal Hernias."——Drs. Burtis M. Hance, Easton, Pa., and Walter W. Baker addressed the Philadelphia Urological Society December 19 on "Suprapubic Prostatectomy and Its Relationship to Infection" and "Surgical Treatment of Horseshoe Kidney" respectively.

UTAH

Meningitis Among Indians.—The Associated Press reported January 14 an epidemic of meningitis among Indians of the Navajo reservation, which occupies parts of Utah, New Mexico, Colorado and Arizona. There have been fifteen deaths. The Utah State Board of Health warned travelers to avoid the reservation, it was said.

WASHINGTON

Personal.—Dr. John R. Corkery Jr. has resigned as health officer of Spokane to engage in private practice. Dr. Fred Charles Harvey succeeded him.

Seminar in Internal Medicine.—Dr. Dwight L. Wilbur, San Francisco, conducted a seminar in internal medicine at the Seattle General Hospital December 28-30. Among the subjects of his lectures were recognition and treatment of vitamin deficiency states, differential diagnosis and treatment

of gastrointestinal bleeding, nervous indigestion, peptic ulcer and the Vitamin B complex in medicine with particular reference to thiamin chloride and nicotinic acid. Dr. Wilbur addressed a special meeting of the King County Medical Society December 28 on "Recent Advances in Nutrition."

WISCONSIN

Intercity Meeting.—The Interurban Academy of Medicine held its annual meeting in Superior November 16 with Dr. Charles H. Slocumb, Rochester, Minn., as the speaker on "Diagnosis and Treatment of Rheumatism." Dr. David L. Tilderquist, Duluth, was elected president and Dr. Frank J. Elias, Duluth, secretary.

Group Hospitalization.—At the midwinter conference of the Wisconsin Hospital Association in Milwaukee January 11 a special committee was appointed to study group hospitalization plans and to promote legislation permitting it. In a resolution proposing this action the Rev. Herman L. Fritschel, superintendent of the Milwaukee Hospital, pointed out that the state medical society had recently approved the principle of the plan. Fees proposed were 75 cents per month for each member for full coverage, 50 cents per month for the first dependent and 25 cents each for additional dependents. Hospitals would provide care for twenty-one days, including board and room in a three or four bed ward, general nursing and operating room services, all formulary drugs and an $8 allowance for serums; surgical dressings, limited laboratory and x-ray services and special services such as oxygen therapy, diathermy, ultraviolet and radiant heat treatments. Not included would be chronic ailments such as mental disease and tuberculosis.

GENERAL

Editor of Surgical Journal Appointed.—Dr. Loyal Davis, professor and chairman of the department of surgery, Northwestern University Medical School, Chicago, has been appointed editor of *Surgery, Gynecology and Obstetrics* to fill the vacancy caused by the death of Dr. Allen B. Kanavel. Dr. Davis was made assistant editor of the journal in 1927 and associate editor in 1933. He graduated at Northwestern in 1918.

Grants Available to Aid Research.—The Committee on Scientific Research of the American Medical Association invites applications for grants of money to aid in research on problems bearing more or less directly on clinical medicine. Preference is given to requests for moderate amounts to meet specific needs. For application forms and further information, please address the committee at 535 North Dearborn Street, Chicago.

Physicians Wanted. — Physicians throughout the country are invited to compete for positions in the Michigan State Service. Positions are open as hospital physician and public health physician at salaries ranging from $200 to $240 per month, less maintenance. Women physicians in particular are sought. The examination will be held in the near future and those interested are urged to communicate at once with the Michigan Civil Service Department, Lansing, Mich., for application blanks and additional information.

History of Science Meeting. — The History of Science Society in cooperation with the American Historical Association met at the Palmer House, Chicago, Dec. 29-30, 1938. The speakers included:

Dr. Arno B. Luckhardt, Chicago, Dr. William Beaumont and the recently acquired Beaumont Memorabilia of the University of Chicago.
Dr. Ko K. Chen, Indianapolis, Caapi of the South American Indians.
Dana B. Durand, Ph.D., Cambridge, Mass., Science and Philosophy in Late Scholasticism.
George de Santillana, Winthrop, Mass., The Emergency of Scientific Concepts in History—Machiavelli.
George Sarton, LL.D., Cambridge, Comenius and Bayle.

Macy Foundation Grants for Medical Research.—During 1938 the Josiah Macy Jr. Foundation made grants aggregating $175,420 for medical research to thirty institutions in Europe and the United States. At the annual meeting in December it was announced that Mrs. Walter G. Ladd, who established the foundation in 1930 in memory of her father, had made a substantial gift in further support of the work. Drs. Stanhope Bayne-Jones, New Haven, Conn., and Charles Sidney Burwell, Boston, were elected to the board of trustees.

Prints of "Beaumont and St. Martin." — John Wyeth and Brother, Philadelphia, has about 3,000 reproductions of "Beaumont and St. Martin" that are available to physicians on request. The picture shows Dr. William Beaumont at Fort Mackinac drawing gastric juice from the fistula in Alexis St. Martin's side. The pictures contain no advertising and are suitable for framing. The original painting, by Dean Cornwell, owned by John Wyeth and Brother, is done in oil and is the first of six large paintings commemorating "Pioneers of American Medicine," sponsored by Wyeth and Brother. Mr. Cornwell will be the artist.

Dana Medal Awarded to Dr. Alger.—The Leslie Dana Gold Medal, awarded annually by the Association for Research in Ophthalmology and the St. Louis Society for the Blind, was presented to Dr. Ellice M. Alger, New York, December 1 at the annual meeting of the National Society for the Prevention of Blindness. Dr. Alger was honored for his contributions to ophthalmology during the past thirty years and his work as a teacher. A graduate of the University of Vermont School of Medicine in 1893, Dr. Alger taught at his alma mater and at the New York Polyclinic Medical School. For many years he has been professor of clinical ophthalmology at New York Post-Graduate Medical School and Hospital.

Society News.—The annual national conference of the Progressive Education Association will be held in Detroit at the Book-Cadillac Hotel February 22-25. The International Council for Exceptional Children will meet in conjunction with the association. —— Dr. Walter B. Cannon, Boston, was elected president of the American Association for the Advancement of Science at its midwinter meeting in Richmond, Va., December 27-31. Dr. Carl J. Wiggers, Cleveland, was elected vice president and chairman for the section on medical sciences (N). Dr. Esmond R. Long, Philadelphia, was elected a member of the executive committee to succeed the late Dr. Earl B. McKinley.——Dr. John F. Fulton, New Haven, Conn., was elected president of the Association for Research in Nervous and Mental Diseases at the annual meeting in New York December 27.

Examinations by Obstetric Board. — The general oral, clinical and pathologic examinations for all candidates, part II examinations (groups A and B), will be conducted by the American Board of Obstetrics and Gynecology, meeting in St. Louis, May 15-16, immediately prior to the annual meeting of the American Medical Association. Notice of time and place of these examinations will be forwarded to all candidates well in advance of the examination dates. Candidates for reexamination in part II must request such reexamination by writing the secretary before April 1. Candidates who are required to take reexaminations must do so before the expiration of three years from the date of their first examinations. Applications for admission to group A in the May examinations must be on file in the secretary's office by March 15. Application blanks and booklets of information may be obtained from Dr. Paul Titus, secretary, 1015 Highland Building, Pittsburgh.

Government Services

Snow Medal Awarded to Dr. Parran

The American Social Hygiene Association has awarded the 1939 William Freeman Snow Medal to Dr. Thomas Parran, surgeon general, U. S. Public Health Service "for his great contribution to the health and happiness of the American people through his persistent efforts against syphilis and the conditions which favor its spread." Presentation of the medal will be made by Dr. Livingston Farrand, Brewster, N. Y., as part of the National Social Hygiene Day program at the Hotel Mayflower, Washington, February 1. The social hygiene society of the District of Columbia will be host to the national organization. Mrs. Franklin D. Roosevelt and Dr. Parran will be the principal speakers.

Changes in U. S. Public Health Service

Dr. Frederick J. Krueger has been promoted and commissioned as passed assistant surgeon in the regular corps of the U. S. Public Health Service. The following have been appointed and commissioned as assistant surgeons in the regular corps: Drs. Albert Gallatin Love Jr., Waldron M. Sennott, Kenneth M. Joyce, John P. Turner and Walter E. Sharpe Jr. Included among those appointed and commissioned as assistant surgeons in the reserve corps are Drs. Harms W. Bloemers at U. S. Marine Hospital, Detroit; Edwin E. Corcoran at U. S. Public Health Service Dispensary, Washington, and Bothwell Graham III at U. S. Marine Hospital, Staten Island, N. Y.

Foreign Letters

LONDON

(From Our Regular Correspondent)

Dec. 31, 1938.

Physicians' Practices in Case of a National Emergency

Physicians are becoming increasingly concerned as to their practices in the event of a national emergency. Some of the problems to be solved are (1) arrangements at first aid posts for surgical assistance (at the time of the crisis experienced surgeons were to be allotted to hospitals only, but it has been suggested that senior medical students might man the first aid posts), (2) whether physicians will be asked to report at once to a local station and whether they will be organized by the civil defense department or carry out their own organization and (3) remuneration for services (if physicians are needed for public work they will be unable to carry on private work and must look to the authorities for maintenance).

The British Medical Association has prepared a model scheme for the protection of the practices of physicians who in time of national emergency are engaged in whole time war service. The intention is to protect the capital value of the practice of an absentee physician and to insure that 50 per cent of the money received for the treatment of his patients while he is on service and for an agreed period thereafter shall be paid to his legal personal representative, less an approved deduction for administrative expenses. The scheme will be effective only if the majority of the physicians in the area agree to join in the communal arrangement. It is strongly desired that all in the area shall agree to join, as any other method will almost certainly lead to confusion and loss. Thus the nomination of one physician to conduct the practice of an absentee would not completely protect his interests. Some of his patients might decline to be treated by the nominee, or his illness or death might bring the arrangement to an abrupt end, with serious depreciation of the capital value of both practices. The evacuation on a large scale of places such as cities specially liable to air raids will require a considerable amount of accountancy in the allotting of capitation payments for insured persons under the panel system, for which it is proposed to establish a bureau. In London the British Medical Association has formed a local emergency committee to deal with all these matters. In case of war this body will become the local medical war committee and will deal with the recruitment of physicians.

Roentgenographic Appearances of the Lungs in Measles

The roentgenographic appearances of the lungs in measles were first described by Kohn and Koriansky in 1929, who observed in 55 per cent of the cases shadows suggesting infiltration, which varied in type, being disseminated mottling in various areas, large homogeneous triangles or large opacities obscuring the hilar and paravertebral regions. These changes frequently occurred in the preeruptive stage, suggesting an intimate association between pulmonary infiltration and the disease rather than a secondary infection. The health officer of the London County Council, Sir Frederick Menzies, has published a series of researches on the measles epidemic of 1935-1936 made in the council's hospitals for infectious diseases. The fifth report, which has just been published, is a monograph on the roentgenographic appearances of the lungs in measles by M. F. Coveney, assistant medical officer of the North-Eastern Hospital, and A. C. Dixon, visiting radiologist. Routine examination of all patients was not attempted, but sixty-one children showing definite clinical evidence of pulmonary involvement, usually bronchopneumonia, were selected. In the majority of cases roentgenograms were taken when clinical signs were no longer present and the patient was well advanced in the convalescent stage. In some cases, however, they were made when the temperature was raised or signs of bronchopneumonia were present. The object was to detect pulmonary changes of a temporary or permanent nature when the patient had recovered from measles.

In every case, roentgenographic signs were present. In 62.3 per cent there were no physical signs in the lungs and the temperature had subsided at the time of roentgen examination, in 14.7 per cent there were still pyrexia and signs of bronchopneumonia, in 18 per cent there were a few coarse rales but no pyrexia and in 5 per cent there were no physical signs but mild pyrexia. The roentgenographic changes corresponded with those noted by Kohn and Koriansky and included (1) pulmonary infiltration (fine mottling or coarser infiltration at the bases), (2) increased hilar shadows in all cases, (3) abnormal intensity of the pulmonary markings and (4) pleuropulmonary changes. The results emphasize the importance of keeping under roentgenographic observation for a considerable time all patients who have had bronchopneumonia as a complication of measles, as the probability of permanent changes is much greater than is usually supposed. In many cases the changes were present at the time of the patient's discharge from the hospital and were suggestive of permanent damage. It is proposed to extend the roentgen examination of the chest during the next epidemic of measles.

Graduate Courses for Panel Physicians

More than 1,100 panel physicians attended graduate courses in 1938. Next year the number will be increased to more than 1,500. The course lasts a fortnight and is held at sixteen medical centers in all parts of the country. The year 1938 was the first complete year for the working of the scheme. So eager were the panel physicians to avail themselves of these courses that three times as many applications were received as there were vacancies. The cost is defrayed by the national health insurance funds. Grants are made to cover the fee for the course, traveling expenses, subsistence allowance and the payment of a locum tenens when one is necessary. The courses are arranged by the ministry of health after consultation with an advisory medical committee. The arrangements for the selection of individual physicians are made through the insurance committee of the British Medical Association. It is hoped to arrange courses at five year intervals for all panel physicians who wish to take advantage of them. The object is to keep the physicians down to date in the advances of medicine more efficiently than can be done merely by reading. Hence physicians are not eligible until they have been qualified more than five years. More than half the courses in England are held at the British Postgraduate Medical School, London, which will provide continuous courses from March 7 onward.

Research on the Atmosphere in Mines

Recent work on silicosis and dust in coal mines, methods of suppressing dust in the air, underground illumination and the pressure and quantity of firedamp in coal seams are the subject of a report by the director of the mining research laboratory. Attention is called to the close connection between the high incidence of bronchitis and silicosis in the western area of the South Wales coal fields. A probable cause is the subjection of the miners, still hot and perspiring after their work, to the cold blast of air in the riding spakes. Another possible cause is daily exposure to small quantities of nitrous fumes after shot firing.

Investigations have been made of the dust suspended in air and the methods for its suppression during the driving of hard headings or when there is ripping in rock. A great reduction in concentration was found to be produced when dust traps were in use or when wet drillings were employed. Ventilation in which the vitiated air is withdrawn through tubes by means of a suction fan or by the ventilation pressure of the pit has the great advantage that the workmen are not exposed to harmful dust or fumes. In many cases the dust used for stone dusting was unnecessarily fine, and in view of its harmful effect such

a large proportion of particles of a size less than 5 microns is deprecated. In the removal of coal dust a water mist was found much more efficient than a spray; it gave an efficiency of the order of 90 per cent. Where the dust is highly siliceous a respirator capable of filtering out the finest particles is necessary. A high air velocity for increasing the cooling power at the working face was found to have the drawback that with velocities greater than 600 feet a minute the amount of dust carried became a nuisance.

Terminal Disinfection

At the Society of Medical Officers of Health an important discussion on terminal disinfection and the exclusion of contacts from school was opened by Dr. Duncan Forbes, health officer for Brighton. He pointed out that the persistence of anthrax bacilli in hides for years and of tubercle bacilli in dried sputum and dust for months gave rise to the mistake that infection lived on in bedding, clothes and the like. But the discovery of diphtheria carriers and of mild overlooked cases of scarlet fever and of carriage of infection by spray showed that apparently healthy carriers were the chief cause of the spread of scarlet fever and diphtheria and that the part played by fomites was negligible. On these grounds orthodox disinfection of mattresses and bedding was abandoned in Brighton in 1910 and spraying in 1921. The boiling of sheets, washing of blankets, dusting of bedrooms and scrubbing of floors was substituted. Home contacts after measles have not been excluded from school at Brighton since 1922, as this did not prevent general infection of the school, and the excluded children played with and infected neighbors' children.

Dr. Andrew Topping said that terminal disinfection was a survival from times of complete ignorance of how infection was spread. We now knew that organisms responsible for infections were extremely short lived outside the human body and that infection did not normally lurk behind picture rails or in the depths of a mattress but is almost invariably due to carriers. But under certain circumstances microbes—for example hemolytic streptococci—could survive outside the body for considerable periods. Recent experiments at Queen Charlotte's Hospital showed that they could be recovered from dust. The moral was Remove the dust. There was no better way than a liberal use of soap and water.

PARIS

(From Our Regular Correspondent)

Dec. 24, 1938.

Lectures on the Ultraviruses

Professor Levaditi, director of the Fournier Institute of the Pasteur Institute of Paris, has organized a course on the status of our knowledge of the ultraviruses. The lectures will be given by Professor Levaditi aided by Drs. Lépine, Mollaret, Magroux and Paie and the subjects will be the virus of variola, herpes, rabies, encephalitis, yellow fever, poliomyelitis, Nicolas-Favre disease and choriomeningitis, the ultravirus of certain diseases in animals, the ultravirus of vegetal cirruses, chemicophysical methods applied to the study of the ultravirus and general considerations on the action and composition of ultraviruses. The first lecture will be given January 6 at the Pasteur Institute of Paris.

Promotion in Legion of Honor for Bacteriologist

During the dedication ceremony incident to the opening of the new buildings of the Pasteur Institute at Garches, a suburb of Paris, the minister of public health conferred the rank of commander of the Legion of Honor on Prof. Gaston Ramon, director of the branch. This honor is a well merited recognition of his work during the past fifteen years in immunology, especially the more recent contributions, such as vaccination against diphtheria and tetanus by the respective toxoids.

Dedication of Branch of Pasteur Institute

The older quarters of the branch of the Pasteur Institute at Garches having been found inadequate to house its rapidly increasing activities, a large new addition was built. The opening of the new laboratories was marked by an elaborate ceremony presided over by M. Rucart, minister of public health. After Dr. Louis Martin, director of the Pasteur Institute of Paris, had recalled the fact that diphtheria antitoxin was first prepared at Garches, Professor Ramon stated that the rapid development of serotherapy and of the use of toxoid vaccination methods had necessitated the construction of more adequate quarters.

Attention was called to the fact that the use of the toxoid to vaccinate children against diphtheria had resulted in a drop in the mortality rate of 75 per cent in ten years in Paris, where only one half of the children had been vaccinated, and of more than 90 per cent in New York, where 80 per cent of the children had been vaccinated. The mortality in Canada has been practically eliminated; nearly every child is now being given three doses of the toxoid as a prophylactic measure against diphtheria. Vaccination of French army horses against tetanus with the specific toxoid has been followed by absolute suppression of the disease during the past ten years. Since August 1936 antitetanus vaccination with the specific toxoid has been made obligatory in the French army. Every soldier is given an "associated" vaccination against typhoid, diphtheria and tetanus. A visit to the laboratories at Garches, where all the serums and toxoids now distributed by the Pasteur Institute of Paris are elaborated, will be of interest to every one interested in immunology. Garches can be reached by automobile in about twenty minutes from the center of Paris.

Effects of Lowering of Atmospheric Pressure

Experiments on human and animal subjects have been made here during the past few years to note the influence of a lowering of the atmospheric pressure as encountered by aviators at very high altitudes. At the Oct. 25, 1938, meeting of the Académie de médecine of Paris, a report of experimental observations was submitted by Dr. Cluzet and his co-workers. Special attention was devoted to the analytic and graphic study of electrocardiographic disturbances as well as to alterations of blood pressure. Experiments were carried out in a caisson to create an atmospheric depression corresponding with rabbits and dogs to that at altitudes of between 10,000 and 11,000 meters (30,000 to 35,000 feet) and with human subjects to that at altitudes not exceeding 6,500 meters (20,000 feet).

In the first series, the influence of such artificially produced lowering of the atmospheric pressure revealed itself in marked changes in the electrocardiogram, which indicated failure of the right ventricle followed by total myocardial impairment. These electrocardiographic changes disappeared after inhalation of oxygen or of the mixture of oxygen and carbon dioxide proposed by Yandell Henderson. An adjuvant therapeutic action of less importance was noted after intravenous or subcutaneous injection of either strychnine or acetylcholine or both of these drugs.

In a second series of experiments, observations were made on the influence on arterial tension of gradual increases in the artificial lowering of atmospheric pressure. Until the pressure corresponded to that at an elevation of 8,000 meters (about 25,000 feet) a progressive rise of the blood pressure was noted. Above this altitude there is a more or less sudden drop in the blood pressure, which is indicative of a severe cardiac failure. Both in man and in animals the inhalation of oxygen as well as that of the carbon dioxide-oxygen mixture suppresses almost completely the rise in blood pressure

up to an altitude of 8,000 meters as well as the tendency to a drop in blood pressure above this altitude. Intravenous injections of strychnine sulfate and acetylcholine apparently do not modify the hypertensive effect of diminished atmospheric pressure in animals up to an altitude of 8,000 meters. On the contrary, at altitudes above 8,000 meters a noteworthy increase in the blood pressure is noted in animals instead of the customary drop above this altitude.

The practical conclusions of these experiments are that they confirm the favorable influence of inhalations of oxygen and of the carbon dioxide-oxygen mixture on cardiovascular disturbances at high altitudes. The differences in the action of oxygen and the carbon dioxide-oxygen mixture are too slight to indicate that the reaction of the carbon dioxide-oxygen mixture is better. Inhalations of either oxygen or the carbon dioxide-oxygen mixture will suffice to prevent cardiovascular disturbances in aviators if they are employed above an altitude of 6,000 meters. From this altitude upward, inhalations of oxygen or of the carbon dioxide-oxygen mixture are difficult to carry out, but this is not true of injections of strychnine and acetylcholine, which should be used as substitutes above this altitude.

BERLIN

(From Our Regular Correspondent)

Dec. 19, 1938.

News of the Universities

Since the last report on the universities (THE JOURNAL July 9, 1938, page 184) interesting developments have taken place. National Minister of Education Rust, in opening the university congress at Leipzig, spoke of the early antagonism of the universities to the Nazi revolution, which, he said, was based on misunderstanding. The goal is not a material domination of the universities; the schools themselves must spontaneously espouse the doctrine of German racial superiority. Institutions of higher learning are primarily concerned with training students for various professions, whereas the new German state has in hand their spiritual orientation. It is no longer a question of whether or not the universities should continue in existence; it is a question of their reorganization. Minister Rust declared that it is often better to march along the street in a column than to engage in discussions. No one wishes to deprive the scholar of his quiet workroom, but there must be a natural interrelation of scientific endeavor and the nation as a whole.

At a festival at Cologne University, Rust stated that the racial theory of the new German reich is opposed to the idea extolled by a French cabinet minister at the dedication of a memorial to the Jewish war dead at Verdun. By the concepts of liberty and equality which stem from the French Revolution, reason was enthroned as the most sovereign authority. However, this ideology later became the source of marxism and bolshevism. Human reason could never set up for itself the law of heroism. Whoever proclaims the principle of personal liberty as the basis of a government will never be able to make supreme the power of the state. Naziism had to face the fact that the disastrous concepts of liberty and equality were prevalent in German universities. Hitler has established a new fundamental concept; namely, a nation based on race. Rust advocated continuation of the old German universities in the belief that Germany stands today on the threshold of an era of greatness. But a university based on purely scientific principles alone ought not to survive. The school must be thoroughly Nazi, for otherwise it cannot keep abreast of the times. The minister expressly wished this last remark to be understood as an appeal.

At the Congress of German Students in Heidelberg an official report was circulated which said that every student should work for a time on a farm or in a factory, an experience of paramount importance for the acquisition of self-discipline and political maturity. During the summer vacation of 1937 more than 9,800 students, men and women, put in eight weeks working on farms. At the same time more than 1,100 students worked in factories and thus enabled 2,100 regular industrial workers to take 21,000 extra days off.

WAR AGAINST INTELLECTUAL PARTICULARISM

At the same congress Dr. Scheel, national führer of students, stated that war should be waged against intellectual particularism. Although German students recognize the function of a university, their understanding will be incomplete if the school is not thoroughly imbued with the Nazi philosophy. The university stands in constant danger of degenerating into a purely intellectual institution, whereas its true function is that of a training center. In future the sharply outlined obligatory "pattern of manhood" will certainly rest on more than an academic basis. It must be made plain to the youth of Germany that science, far from being a useless occupation, represents an important phase in the struggle between the Nazi weltanschauung and its adversaries.

STUDENT AID

The national government has created a "National Student Aid" based on student benefit organizations, which will be concerned with the economic and physical welfare of the new academic generation. Its president is the national führer of students. The funds are obtained from government subsidies, from volunteer contributions and from officially regulated contributions by the student bodies. Of the total of about 60,000 university students, the number receiving aid is constantly about 6,000, and 700 of these are helped throughout their student careers. Another 1,500 students are helped by the local student aid services in collaboration with the central organizations. Another 2,000 students are admitted to free meals and other benefits. About 1,500 special scholarships are awarded annually, the largest being grants of 1,200 marks to certain students preparing for final examinations. The assets of the National Student Aid in 1938 amounted to around 4,000,000 marks exclusive of the funds of the local organizations in certain universities.

NAZI ALUMNI AND STUDENT ORGANIZATIONS

In the past, alumni members of student fraternities were organized into special associations of "old grads," which served to keep alive old academic contacts and to aid the undergraduate members of the respective clubs. These alumni groups were a traditional part of the German university. As previously reported, all these alumni groups had been disbanded. Recently, however, they have been revived under government auspices and united into a German students' alumni association. This step represents the fruition of special efforts made by the government to appease the university alumni. The "Nazi alumni association," now sole organization of university alumni in Germany, held its first rally in Heidelberg. It was announced that all Catholic organizations of students and alumni had been disbanded and their funds confiscated "for the benefit of organized Nazi activities among students." An enormous increase in the membership of the Nazi alumni association has lately been made known; in 1937 there were some 7,000 members, and at present there are nearly 50,000.

The Heidelberg rally was also the occasion for an address by Dr. Scheel, who spoke of the social clubs, which have replaced the old student fraternities, as "cells of the Nazi party." He also remarked that the survival of academic life depended on the adaptability of the universities to the Nazi movement.

THE YOUNGER ACADEMIC GENERATION

An acute problem is that of aid for the younger academic generation. The national führer of university instructors, Dr. Schultze, some time ago submitted a report saying that the shortage of young professional men was due to the exodus of university students into business following the Nazi accession.

The universities were unable to keep pace with the speedy tempo of new developments. Then too the remuneration offered the young men by the universities could not compete with that offered in the industrial field. Five months later Dr. Schultze stated that with respect to the filling of teaching posts and the numbers of the younger academic generation the needs of the universities were not being met. Since 1935 the young graduates in engineering have not been able to met the demand. He requested that people desist from unjustified criticism of universities.

The decreases in enrolment in the universities is shown by a report on Bavarian institutions. Students admitted to the first semester numbered 2,957 in the summer semester of 1931, but in the winter semester of 1937-1938 the number was only 940. In the winter of 1913-1914 a total of 9,340 students were matriculated; the number was 13,819 in the winter of 1932-1933 and only 6,825 in the winter of 1937-1938 and 6,092 in the summer of 1938. The enrolment in the past year was far below that of prewar times. Moreover, the number of medical students has dropped from 593 in 1928 to 240 in the summer of 1938. To counteract this dearth of younger professional men an abbreviation of the time spent in study was proposed. A decree of the national minister of the interior has already reduced the medical course by about one semester; the entire course now covers ten half year periods instead of eleven.

As to the new generation of university teachers, an endeavor is being made to remedy the depletion of their ranks. As stated in the article "Qualified for a Professorship?" (in *Nat.-Soz. Parteikorrespondenz*) there is no need for a meticulous investigation of a teacher's past prior to 1933 and one must differentiate between a single misstep and an antigovernment attitude of mind.

DECREE AGAINST JEWISH STUDENTS

In November, after the assassination of von Rath in Paris, all Jews (an extremely small number) who had been allowed to attend the universities were summarily expelled. The few Jewish pupils remaining in the public schools were similarly dealt with. Likewise all loans to Jewish students were immediately called in.

AUSTRALIA

(From Our Regular Correspondent)

Dec. 20, 1938.

National Insurance Postponed

Following a parliamentary crisis in which a move was made to shelve indefinitely the scheme for national health and pensions insurance in Australia, its introduction has been postponed until September 4, nine months later than originally planned and four months later than the date fixed under the amended legislation. This step has been forced on the government by pressure from a powerful section of the Country Party, whose claim is that the record defense expenditure of £63,000,000 combined with low price levels for primary production make postponement imperative in the interests of the people. Concessions made to the Country Party during the recent crisis include the introduction of new legislation to provide benefits for small employers and self-employed persons, but there is still a powerful faction determined to fight for the definite postponement of the entire scheme. It has also been suggested that the whole scheme be redrafted and reconstituted, but it is unreasonable to suppose that a second scheme could be formulated under present conditions which would be more generally acceptable.

College of Physicians

The inaugural ceremony of the Royal Australasian College of Physicians took place December 13 in the great hall of the University of Sydney. Fraternal messages were received from the Royal College of Physicians of London, the Royal College of Physicians of Edinburgh, the American College of Physicians and the Royal Australasian College of Surgeons. Great interest was attached to the occasion by the inclusion in the inaugural program of a valuable series of lectures and demonstrations.

Training of "Nursing Aids"

The department of health in New Zealand has been considering the question of the training of nursing aids for work among the chronic sick and, in consultation with the Nurses' and Midwives' Registration Board, has prepared a scheme with this object in view. To show the necessity for the proposal it may be stated that according to the last census about 740 women who were not registered nurses and who had either no training or very little were engaged in private nursing in the dominion. It will be the function of these "nursing aids" to care for the chronically ill. The proposed scheme will have the additional advantage of bridging the gap between leaving school and entering a hospital for general training. On completion of the course in nursing aid, a concession in time will be allowed toward general training if the student wishes to proceed further. The course covers two years and conforms to the regulations prescribed by the Nurses' and Midwives' Registration Board. The first year's practical experience will be devoted to a training in domestic arts and will include experience in domestic duties, laundry and kitchen. The second year will be spent in the wards of an approved hospital and will include experience in the personal care of the patient and general ward hygiene. Theoretical instruction will include in the first year hygiene, an elementary introduction to anatomy and physiology, and the principles of cooking and nutrition and in the second year a series of lectures on the principles of general nursing and first aid. Similar schemes for the training of "nursing aids" have been tentatively tried out in the United States of America, Great Britain and Canada, but in no country so far has any such comprehensive scheme as is now contemplated been put into force.

POLAND

(From Our Regular Correspondent)

Jan. 3, 1939.

Spotted Fever Epidemic

Spotted fever has broken out from time to time in the eastern districts of Poland, particularly Polesie, because of the great number of lice harbored by the country folk living there. Dr. W. Skomoroch has reported on some peculiarities in the clinical picture in many cases he recently observed. The disease started, as usual, with headache, uneasiness and a rise in temperature. The temperature kept at a high level for a fortnight and then dropped abruptly. The Weil-Felix test was positive. The most striking feature was the complete absence of any rash. Another unusual feature was the absence of nervous disorders. The mortality rate was relatively low, about 5 per cent. No case of enlargement of the spleen or desquamation was observed.

Complications Following Spinal Punctures

Dr. I. Süss of the neurologic clinic of the University of Cracow reported statistical data concerning complications following spinal puncture. The material consisted of 2,913 punctures done in the clinic during the last eighteen years. Of these 2,817, or 96.7 per cent, were lumbar, while seventy-three, or 2.5 per cent, were suboccipital and twenty-three, or 0.7 per cent, were intraventricular. Complications occurred in 216 cases, i. e. in 7.4 per cent. The complications were fatal in twelve cases, ten of lumbar puncture and two of intraventricular puncture. In nine of the ten fatal cases brain tumor was found by postmortem examination. In these cases the cerebellum was squeezed into the foramen occipitale magnum and the tumor was found in the fossa cranii posterior. In all the cases the death occurred immediately or, at the latest, within four days after the puncture. The death was preceded by bradycardia, diminishing of the pulse, paleness of the skin and vomiting. In some cases the temperature rose remarkably before death; in others

the author observed spastic hemiplegia followed by a deep coma. In the two cases of intraventricular puncture death was due to faulty technic; in one it was attributed to hemorrhage caused by a lesion of a brain vessel and in the other a large amount of air was introduced into the ventricle, the passage of the cerebrospinal fluid from the ventricles into the subarachnoidal space being obliterated. The meningeal syndrome, the most frequent complication due to lumbar puncture, developed in 65 per cent of the cases in which there were complications. Either it was in an abortive form, with headache, cervical and sacral pain, nausea and vomiting, or there were evident typical meningeal symptoms, such as rigidity of the neck and Brudzinsky and Kernig signs. The lumbar punctures were followed by complications more often in adults than in children and more often when the puncture was carried out with the patient sitting than lying down.

Withdrawal of Jews from the Medical Profession

The Association of Physicians in Poland, since introducing in its statutes the Aryan paragraph previously reported in THE JOURNAL, has taken strong action to withdraw Jews from the medical profession. A deputation of the association appealed to the medical departments of all Polish universities not to admit Jews. The demands were partially followed by the universities. The percentage of Jewish candidates admitted lately to the medical departments in all Poland amounts only to 3.7.

Marriages

WILLIAM RUSSELL FUNDERBURG, New Carlisle, Ohio, to Miss Anna Marie Couch of Orlando, Fla., Sept. 10, 1938.

MARVIN SMITH CASHION, Mooresville, N. C., to DR. DOLORES ISABEL MENDEZ of San Juan, P. R., Nov. 12, 1938.

JOSEPH RUSSELL COOK, Huntington, W. Va., to Miss Sue Maclin Burr of Blacksburg, Va., Nov. 23, 1938.

ARTHUR WILLIAMS ROBISHAW, Elyria, Ohio, to Miss Ora Elizabeth Champion of Bellevue, Oct. 26, 1938.

LAWRENCE EDWARD FOULKE, Washington, Ill., to Miss Lois Merle White at La Grange, Ill., Oct. 25, 1938.

SUMNER WILDMON BROWN, Donalds, S. C., to Miss Mary Robertson of Gold Hill, Ala., Aug. 24, 1938.

PATRICK JOSEPH FAHEY, Des Plaines, Ill., to Miss Theresa Noon of Onaway, Mich., Sept. 10, 1938.

THOMAS JOHNCEY FLOYD JR., Jersey City, N. J., to Miss Juliet Jordan of Hurtsboro, Ala., recently.

HENRY CLAY SMITH, Boyce, Va., to Mrs. Mary Martin Singer of Clarke County, Oct. 25, 1938.

THOMAS F. FARRELL, Prairie du Chien, Wis., to Miss Juanita Heberer of St. Louis, Nov. 16, 1938.

JOE EDWARD FREED, Columbia, S. C., to Miss Katherine Werts of Prosperity, Nov. 10, 1938.

GEORGE COOPER JR. to Miss Juliet Foster Paine, both of Charlottesville, Va., Nov. 24, 1938.

JOHN WESLEY RICE, Sturgis, Mich., to Miss Edytha Ball of Montrose, Ill., in November 1938.

ALVIN H. JACOBS, Pittsburgh, to Miss Opal Sedalia Wilson of Wendell, N. C., Nov. 5, 1938.

HERBERT FOX, Philadelphia, to Miss Mary Harlan Rhoads of Moorestown, N. J., Dec. 3, 1938.

EDGAR CLAY HARPER to Mrs. Dorothy Seaman Albright, both of Richmond, Va., Oct. 15, 1938.

WILLIAM FELIX FEARN, Westmont, N. J., to Miss Rosalie M. Reilly of Berlin, Nov. 24, 1938.

WILLIAM ABEL FRITZ to Miss Elaine Morell Maness, both of Hickory, N. C., Nov. 24, 1938.

JAMES LUTHER FULLER to Miss Lillian Mae Abbott, both of West Point, Miss., recently.

CORRECTION

The date of the marriage of Dr. Gustave Freeman published in THE JOURNAL January 14, page 165, should have been Oct. 29, 1938, instead of Dec. 29, 1938.

Deaths

Alfred A. Chapman ✠ Sweetwater, Texas; University of Texas School of Medicine, Galveston, 1904; past president of the Nolan-Fisher Counties Medical Society; served during the World War; for many years member and president of the school board; on the staff of the Sweetwater Hospital; formerly health officer; at one time member of the board of trustees of the Southwestern University, Georgetown; aged 64; died, Oct. 7, 1938, of Hodgkin's disease.

John Champlin ✠ Westerly, R. I.; University of the City of New York Medical Department, 1886; member of the House of Delegates 1902-1904, 1906-1909 and in 1912; past president of the Washington County Medical Society; formerly chairman of the state board of public welfare; on the staffs of the Westerly (R. I.) Hospital and the Rhode Island Hospital, Providence; aged 75; died, Nov. 27, 1938, of coronary thrombosis.

Charles Serpa Neves, Montclair, N. J.; Harvard University Medical School, Boston, 1913; member of the Medical Society of New Jersey; school physician; served during the World War; at various times on the staffs of St. Vincent's Hospital, Community Hospital and the Mountainside Hospital, Montclair, and the Essex County Hospital for Contagious Diseases, Belleville; aged 51; died, Nov. 4, 1938, of coronary occlusion.

Robert Miller Cochrane ✠ Surg., Lieut. Commander U. S. Navy, Dahlgren, Va.; University of Pennsylvania School of Medicine, Philadelphia, 1917; served during the World War; entered the Navy in 1921; served as urologist at the Naval hospitals at New York, Boston and Philadelphia and in the Nicaraguan expedition; aged 46; died, Nov. 30, 1938, of coronary occlusion.

Paul Rutherford Macfadyen, Concord, N. C.; University College of Medicine, Richmond, 1901; member of the Medical Society of the State of North Carolina; fellow of the American College of Surgeons; on the staff of the Cabarrus County Hospital; formerly physician in charge of the Concord Hospital; aged 64; died, Nov. 26, 1938, of acute hepatitis and cirrhosis of the liver.

Jose Antonio Lopez y Antongiorgi ✠ San Juan, P. R.; Syracuse University College of Medicine, 1904; member of the Medical Society of the State of New York; at one time professor of surgery at the New York Polyclinic Medical School and Hospital, New York; aged 57; died, Nov. 19, 1938, in the New York Polyclinic Hospital, following an appendectomy.

William Henry Schwingel ✠ Aurora, Ill.; Rush Medical College, Chicago, 1905; past president of the Kane County Medical Society; fellow of the American College of Surgeons; on the staff of St. Joseph Mercy Hospital, Copley Hospital and St. Charles Hospital; aged 67; died, Nov. 7, 1938, of injuries received in an automobile accident near Osceola, Wis.

Theodore Alpheus Felch, Ishpeming, Mich.; Detroit Medical College, 1874; member of the Michigan State Medical Society; member of the House of Delegates of the American Medical Association in 1903 and in 1909; formerly mayor of Ishpeming and health officer; aged 91; died, Nov. 21, 1938, of arteriosclerosis and myocarditis.

Andrew Clinton Harrison, Charleston, Miss.; Memphis (Tenn.) Hospital Medical College, 1899; member of the Mississippi State Medical Association; aged 72; died, Nov. 14, 1938, in the Methodist Hospital, Memphis, Tenn., of hypertrophy of the prostate, bacterial endocarditis and brain abscess.

Hugh H. Haralson, Vicksburg, Miss.; University of Louisiana Medical Department, New Orleans, 1883; member, past president and secretary of the Mississippi State Medical Association; formerly member of the state board of health; county jail physician; aged 84; died, Nov. 18, 1938.

Frederick Earl Diemer, Denver; University Medical College of Kansas City, Mo., 1908; member of the Colorado State Medical Society; served during the World War; aged 53; died, Nov. 29, 1938, in the Fitzsimons General Hospital of arteriosclerosis, hypertension and cerebral hemorrhage.

Nathan Powell Graham ✠ Indianapolis; Medical College of Ohio, Cincinnati, 1899; at one time assistant in medicine, Indiana University School of Medicine; on the staff of St. Vincent's Hospital; served during the World War; aged 62; died, Nov. 27, 1938, of cerebral hemorrhage.

Samuel Adams ✠ Jersey City, N. J.; New York Homeopathic Medical College and Hospital, New York, 1900; police surgeon and school physician; aged 77; died, Nov. 16, 1938, in the Fifth Avenue Hospital, New York, of chronic myocarditis, carcinoma of the ileum and cholecystitis.

David Handmacher, Cleveland; Cleveland Homeopathic Medical College, 1898; Cleveland College of Physicians and Surgeons, Medical Department Ohio Wesleyan University, 1904; aged 83; died, Nov. 28, 1938, of arteriosclerosis, pyelitis and hypertrophy of the prostate.

Albert Andrew Crabbe ✠ Traer, Iowa; Keokuk Medical College, College of Physicians and Surgeons, 1900; past president and secretary of the Tama County Medical Society; for several years health officer; aged 67; died suddenly, Nov. 29, 1938, of coronary occlusion.

William Lincoln Carden, Andersonville, Tenn. (licensed in Tennessee in 1889); member of the Tennessee State Medical Association; past president of the Anderson County Medical Society; aged 73; died, Nov. 3, 1938, in St. Mary's Hospital, Knoxville, of cholecystitis.

George Bales Breedlove, Martinsville, Ind.; University of Tennessee Medical Department, Nashville, 1900; served during the World War; formerly county health officer; aged 72; died, Nov. 10, 1938, of coronary and cerebral thrombosis, myocarditis and hypertension.

Samuel L. Brister, Greenwood, Miss.; Memphis (Tenn.) Hospital Medical College, 1888; for many years member of the board of trustees of the city schools; on the staff of the Greenwood-Leflore Hospital; aged 74; died, Nov. 10, 1938, of carcinoma of the prostate.

Edward Ellsworth Blythe, Riverside, Iowa; State University of Iowa College of Medicine, Iowa City, 1904; member of the Iowa State Medical Society; aged 64; died, Nov. 5, 1938, of lobar pneumonia, diabetes mellitus and hypertrophy of the aorta.

Henry Muncie Lyda, Frisco City, Ala.; Memphis (Tenn.) Hospital Medical College, 1905; member of the Medical Association of the State of Alabama; veteran of the Spanish-American War; aged 70; died, Nov. 4, 1938, of cardiorenal vascular disease.

Aristides Tillou Barbin, Marksville, La.; University of Nashville (Tenn.) Medical Department, 1901; member of the Louisiana State Medical Society; parish coroner and formerly mayor; aged 61; died, Nov. 5, 1938, of multiple abscesses of the liver.

John Henry Andrews, Hyannis, Mass.; Harvard University Medical School, Boston, 1902; member of the Massachusetts Medical Society; for many years on the staff of the Cape Cod Hospital; aged 62; died, Nov. 22, 1938, of cerebral hemorrhage.

Augustus Melville Harrelson, Stringer, Miss.; University of Tennessee Medical Department, Nashville, Tenn., 1892; served during the World War; aged 73; died, Nov. 27, 1938, in Bay Springs, of cerebral hemorrhage and cirrhosis of the liver.

Arthur Albert Kahala, Crookston, Minn.; Minneapolis College of Physicians and Surgeons, 1902; member of the Minnesota State Medical Association; fellow of the American College of Surgeons; aged 61; died, Nov. 19, 1938, of chronic myocarditis.

Willis Joseph Colbert ✠ Youngstown, Ohio; Georgetown University School of Medicine, Washington, D. C., 1918; on the staff of St. Elizabeth's Hospital; aged 44; died, Nov. 28, 1938, of acute coronary occlusion and chronic myocarditis.

Porter Barry Lennox, Washington, D. C.; Howard University College of Medicine, Washington, 1917; assistant professor of pathology at his alma mater; aged 50; died, Nov. 9, 1938, of peritonsilar abscess and acute nephritis.

John Tugaw Legier ✠ Carmi, Ill.; Bellevue Hospital Medical College, New York, 1891; past president of the White County Medical Society; on the staff of the Carmi Hospital; aged 71; died, Nov. 7, 1938, of nephritis.

Andrew Otteraaen, Wenatchee, Wash.; Loyola University School of Medicine, Chicago, 1917; member of the Washington State Medical Association; county health officer; aged 54; died, Oct. 30, 1938, of coronary thrombosis.

James Carlisle Dodson, Richelieu, Ky.; University of Louisville Medical Department, 1912; member of the Kentucky State Medical Association; aged 51; died, Nov. 1, 1938, of acute infectious pyelitis and hypertension.

William Austin Mills, Hohokus, N. J.; University of Vermont College of Medicine, Burlington, 1881; veteran of the Spanish-American and World wars; aged 82; died, Nov. 30, 1938, of cerebral hemorrhage.

William Wilson Houston, Good Hope, Ill.; Keokuk (Iowa) Medical College, College of Physicians and Surgeons, 1901; aged 61; died, Nov. 8, 1938, in the Marietta Phelps Hospital, Macomb, of chronic nephritis.

Norman Walter File ✠ Lynchburg, Va.; Baltimore Medical College, 1908; served during the World War; aged 54; on the staff of the Virginia Baptist Hospital, where he died, Nov. 4, 1938, of cerebral hemorrhage.

Willis London, Franklin, Ky.; Vanderbilt University School of Medicine, Nashville, Tenn., 1888; member of the Kentucky State Medical Association; aged 74; died, Nov. 6, 1938, of hypertension and myocarditis.

Joseph Alonzo Luckett, Dell, Ark.; University of Tennessee College of Medicine, Memphis, 1916; member of the Arkansas Medical Society; aged 60; was killed, Nov. 22, 1938, in an automobile accident.

John A. M. Nolen, Alexander City, Ala.; Medical College of Alabama, Mobile, 1904; member of the Medical Association of the State of Alabama; aged 61; died, Nov. 8, 1938, of cerebral hemorrhage.

William H. Kalbfleisch, Balgonie, Sask., Canada; Western University Faculty of Medicine, London, Ont., 1898; for many years mayor; aged 70; died recently, of a skull fracture received in a fall downstairs.

Marcenus C. Mason, Rochester, N. Y.; University of Buffalo School of Medicine, 1888; died, Oct. 26, 1938, of arteriosclerotic heart disease, cerebral hemorrhage and benign prostatic hypertrophy.

Samuel Solomon Danziger, Columbus, Ohio; Detroit College of Medicine and Surgery, 1916; served during the World War; aged 43; died, Nov. 28, 1938, of acute cardiac decompensation.

William Pomeroy Biggart, Lancaster, S. C.; Medical College of the State of South Carolina, Charleston, 1925; aged 40; died, Oct. 22, 1938, in the Veterans Administration Facility, Columbia.

Eugene J. Brown, Stanford, Ky.; University of Louisville Medical Department, 1891; member of the Kentucky State Medical Association; aged 71; died, Nov. 11, 1938, of cerebral hemorrhage.

Eugene Aaron Hawley, Texarkana, Texas; Rush Medical College, Chicago, 1896; member of the Arkansas Medical Society; aged 62; died, Nov. 4, 1938, of pneumonia and heart disease.

J. Russell Mosier, Hayfield, Pa.; University of Maryland School of Medicine, Baltimore, 1883; member of the Medical Society of the State of Pennsylvania; aged 83; died, Oct. 14, 1938.

Callender L. Johnson ✠ Dallas, Texas; Howard University College of Medicine, Washington, D. C., 1897; aged 70; died, Nov. 14, 1938, of coronary occlusion, hypertension and nephritis.

Alonzo Allen Fuson, Summum, Ill.; St. Louis University School of Medicine, 1912; on the staff of the Graham Hospital, Canton; aged 55; died suddenly, Nov. 18, 1938, of heart disease.

Peter John Fisher Houston, Toronto, Ont., Canada; University of Toronto Faculty of Medicine, 1904; on the staff of the Toronto East General Hospital; aged 60; died, Nov. 7, 1938.

John Thomas Craddock ✠ Mackinaw City, Mich.; Ohio State University College of Medicine, Columbus, 1925; aged 46; died, Nov. 12, 1938, of coronary thrombosis and hypertension.

John William McKay, New Glasgow, N. S., Canada; Bellevue Hospital Medical College, New York, 1886; on the staff of the Aberdeen Hospital; aged 79; died, Oct. 9, 1938.

Llewellyn Jordan, Takoma Park, Md.; Columbian University Medical Department, Washington, D. C., 1894; also a dentist and lawyer; aged 71; was found dead, Nov. 5, 1938.

Robert Leon Hill, Boonville, Mo.; Howard University College of Medicine, Washington, D. C., 1897; aged 65; died, Nov. 22, 1938, in St. Joseph's Hospital of cirrhosis of the liver.

George Oliver Emerson, Danville, Va.; University College of Medicine, Richmond, 1898; member of the Medical Society of Virginia; aged 66; died, Nov. 21, 1938, of endocarditis.

Casper Swart Dodd, Kansas City, Mo.; University Medical College of Kansas City, 1901; aged 68; died, Oct. 18, 1938, in the Trinity Lutheran Hospital of cerebral hemorrhage.

Henry Edward Frost, Anacortes, Wash.; Jefferson Medical College of Philadelphia, 1906; member of the Washington State Medical Association; aged 62; died in November 1938.

Alcinous Burton Jamison, New York; Medical College of Fort Wayne, Ind., 1878; aged 87; died, Nov. 15, 1938, in St. Luke's Hospital of arteriosclerotic heart disease.

Michael McCormack Nolan ✠ Birmingham, Ala.; Jefferson Medical College of Philadelphia, 1912; served during the World War; aged 51; died suddenly, Nov. 23, 1938.

Landon Armstrong Colquitt ✠ Waskom, Texas; University of Texas School of Medicine, Galveston, 1922; aged 42; was killed Nov. 22, 1938, in an automobile accident.

James Augustus Johnson, Philadelphia; Howard University College of Medicine, Washington, D. C., 1906; aged 57; died, Oct. 27, 1938, of uremia and chronic nephritis.

Garvyn Priestly Hicks, Bruceton, Tenn.; University of Nashville Medical Department, 1905; aged 58; died, Nov. 23, 1938, in Lake Worth, Fla., of coronary thrombosis.

Grant Giles, Bloomfield, Iowa; Keokuk Medical College, 1898; aged 70; died, Nov. 26, 1938, of carcinoma of the prostate and hypostatic pneumonia.

S. MacDonald, Collinsville, Miss.; Mississippi Medical College, Meridian, 1909; aged 57; died, Nov. 18, 1938, of injuries received when a horse he was riding fell on him.

Lucien Clyde Fausold ✠ Glenshaw, Pa.; University of Pittsburgh School of Medicine, 1913; aged 55; died, Nov. 13, 1938, in St. Louis, of carcinoma of the bronchus.

Minerva Herrick, Chicago; Illinois Medical College, Chicago, 1906; aged 77; died, Nov. 13, 1938, of acute dilatation of the heart, myocarditis and arteriosclerosis.

Verden Giddings Slater, San Bernardino, Calif.; Stanford University School of Medicine, San Francisco, 1932; aged 33; died, Oct. 29, 1938, of pulmonary tuberculosis.

M. Samuel Alexander, Goose Creek, Texas; Memphis (Tenn.) Hospital Medical College, 1912; health officer; aged 68; died, Nov. 8, 1938, of diabetes mellitus.

Howard Nelson Leeds, Cincinnati; Medical College of Ohio, Cincinnati, 1907; served during the World War; aged 55; died, Nov. 10, 1938, of carcinoma of the rectum.

Charles Wainwright Birnie, Sumter, S. C.; University of Pennsylvania Department of Medicine, Philadelphia, 1898; aged 64; died, Nov. 22, 1938, of a spinal tumor.

Charles Gordon Brown, Spokane, Wash.; Long Island College Hospital, Brooklyn, 1876; aged 90; died, Nov. 8, 1938, in St. Maries, Idaho, of coronary thrombosis.

Thomas Duncan, Fleta, Ala.; Medical College of Alabama, Mobile, 1892; aged 72; died, Nov. 17, 1938, in a hospital at Montgomery, of gangrene of the intestine.

Arthur O. Jones, Greensboro, N. C. (licensed in North Carolina in 1890); aged 71; died, Nov. 25, 1938, in the Piedmont Memorial Hospital of bronchopneumonia.

Edwin J. Lowell Robinson, San Diego, Calif.; Homeopathic Hospital College, Cleveland, 1883; aged 78; died, Oct. 25, 1938, of ulceration of the stomach.

Jess Henry Moeller, Maddock, N. D.; Kongelige Frederiks Universitet Medisinske Fakultet, Oslo, Norway, 1892; aged 73; died, Nov. 23, 1938, of heart disease.

Rowland Francis Altree, Tampa, Fla.; Medical College of Alabama, Mobile, 1899; aged 66; died, Oct. 22, 1938, of chronic myocarditis and nephritis.

Paul Barnabus Bauer ✠ White Hall, Ill.; University of Illinois College of Medicine, Chicago, 1934; aged 36; died, Nov. 15, 1938, of brain tumor.

Julius K. Elms, Lincoln, Neb.; Chicago Homeopathic Medical College, 1879; aged 88; died, Oct. 22, 1938, of chronic nephritis and arteriosclerosis.

Robert Wilson Cook, Adolphus, Ky.; Vanderbilt University School of Medicine, Nashville, Tenn., 1894; aged 78; died, Nov. 16, 1938, of angina pectoris.

Walter B. House, Saugatuck, Mich.; Chicago Homeopathic Medical College, 1885; aged 81; died, Nov. 30, 1938, of cerebral hemorrhage.

William Hyndman, Jackson, Mich.; Detroit Medical College, 1877; aged 87; died, Nov. 28, 1938, of arteriosclerosis and cerebral hemorrhage.

Fred Leslie Redman, Corinna, Maine; Medical School of Maine, Portland, 1893; aged 79; died, Oct. 30, 1938, of hemorrhage of the stomach.

Edward Joachim Couillard ✠ Northbridge, Mass.; Baltimore Medical College, 1909; aged 57; died, Oct. 8, 1938, of cerebral hemorrhage.

John C. Bryan, Chicago; Rush Medical College, Chicago, 1877; aged 88; died, Nov. 4, 1938, of chronic myocarditis and arteriosclerosis.

Frank E. Burgess, Dexter, Maine (licensed by years of practice); aged 81; died, Oct. 23, 1938, of valvular heart disease.

Selmon A. Casady, Shenandoah, Iowa; Keokuk Medical College, 1891; aged 87; died, Nov. 15, 1938, of coronary sclerosis.

Bureau of Investigation

RX MEDICINAL SPIRITS

The Peculiar Claims for a "Nonintoxicating" Whisky

For about a year a group using the trade style "Rx Medicinal Spirits," 2100-2120 South Morgan Street, Chicago, has been promoting to physicians a whisky named "Prescription Brand." Apparently prior or coincidental to this, Rx Medicinal Spirits of Peoria, Ill., was distributing a similar product called "RMS Private Formula." One of the advertising pieces for the latter product, distributed with the compliments of the manufacturer of the former, was entitled "Authentic Abstracts on Alcohol and Whiskey." It contains reprints of what appear to be photostatic copies of articles appearing in various scientific journals. Inquiry of the editors of these journals indicates that, at least in most cases, permission was not obtained to reproduce this material. Since some of the articles were taken from THE JOURNAL, the firm was asked to discontinue the use of the material, which it claims it has done.

Although this whisky is labeled "94 proof" and carries the state of Illinois tax stamp for one pint of alcoholic liquor, it is claimed that it is practically free from poisonous congenerics which the United States Pharmacopeia does not even recognize. An advertising folder includes a copy of the U. S. P. description of whisky, and to this description the manufacturers have added notations that the assays are 45 years old and that no mention is made of fusel oil, furfural and aldehyde, all of which are marked poison.

The method of purification is described in a form letter as follows:

> "Our manufacturing technique begins where the manufacturer of beverage whiskey stops. For example, we take a 2 to 4 year old whiskey that is supposed to be finished and ready for bottling by the beverage manufacturer and we then, by means of complete fractionation and absorption, remove the poisonous congenerics. This is all done without disturbing the mellowness, palatability, alcoholic content or optic value. After this whiskey has been washed and cleansed, ready for consumption, it has a much milder taste and there is no harsh after re-action."

The claim of the manufacturer and distributor is that the toxic, habit-forming narcotics and hypnotics have been reduced to a minimum in this brand of whisky. The firm states in one of its form-letters that:

> "Used as a prophylactic, it will prohibit the possibility of ever becoming an inebriate. Used as a remedial whiskey in chronic alcoholism, it tends to make a moderate and sane drinker. The physiological and psychological results are automatic, because the patient is not denied his liquor and in the absence of narcotics, the quantity imbibed decreases."

No doubt such a treatment would be acceptable to the drunkard. It could never, by the greatest stretch of the imagination, be considered a cure for chronic alcoholism. The suggestion appears as a pernicious piece of folderol.

According to the manufacturers, they have been able to reduce the furfural, the aldehyde and "amyl" and "iso-amyl" (sic). That these ingredients may be poisonous is not denied. That they are any more poisonous in the quantity in which they may occur in U. S. P. whisky than the whisky itself, i. e. the alcohol content therein, is most certainly not at all evident, in spite of the reports from the literature entitled "Authentic Abstracts."

During Prohibition some drinkers partook of grain alcohol, diluted and flavored, and even straight; it seemed to be a satisfactory product for producing the euphoria and the inebriation desired by those addicted to alcohol. This is not surprising, in view of the following quotation from Sollmann's "A Manual of Pharmacology," 1936 (Philadelphia, W. B. Saunders Company):

> "The impression prevails widely that the 'impurities' [higher alcohols and ethers and esters formed from these and called collectively 'fusel oil'] add materially to the harmfulness of the liquors, but practically all scientific investigations have confirmed the conclusion that there is practically no objectively discoverable difference in action between any of the potable spirits, ranging from the rawest to the most delicate. They are all about equally, and quite insignificantly, more irritant and more toxic than pure ethyl alcohol. The differences are purely in the flavor and its psychic suggestions. This has been the practically uniform result of all critical investigations, and could be deduced from the nature and quantity of the impurities."

Some of the "authentic abstracts" would seem to refute some of these statements; others, however, support it.

In the promotion of this whisky in the treatment of alcoholism, the firm is using a case history which reads as follows:

"The patient, whose clinical course I am about to relate, was referred to me by Dr. F. on June 25, 1937. J. M., a professional man from southern Illinois, aged 37, was first seen by Dr. F. on April 7, 1935, at which time he was admitted to the St. Francis Hospital for the treatment of Acute Alcoholism. Since that date until the present admission he has been in and out of the Hospital at least once every month for treatment of the same condition. On May 31, 1935, he developed a toxic myocarditis as evidenced by the definite tachycardia, etc. During the latter part of December 1935 for the first time he became very unruly and vicious. Also at this time there occurred a rupture of some esophageal varices. Since December 1935 every time that he would go on a drinking bout, he would become very vicious and wild—throwing furniture about and even grabbing small children by the nape of the neck and throwing them around.

"On this last admission to the Hospital, he entered on June 21, 1937, and from that date until June 25th the treatment of his condition consisted of 5% glucose solution intravenously, hydro-therapy, sodium bromide 10 grains as needed, and whiskey one ounce every four hours. During this time he would get up and about, and come out into the corridors, bother visitors, and loudly insisted on using the desk telephone—thus presenting quite a nursing problem. His pulse rate ranged well over a hundred—the highest being 132.

"The morning of June 25, 1937, the patient was started on Private Formula whiskey, and all other medications were stopped. He was allowed to consume as much of this whiskey as he desired. That night he slept well without the aid of any sedatives or hypnotics much to the surprise of the night supervisor. The following morning he awoke without any headache or hangover, and ate some breakfast—the most he had eaten since his admittance. The next two days, June 26 and 27, he was allowed again as much Private Formula Whiskey as he wished to drink. He began to eat something at mealtimes, and was content to stay in his room and sleep. His pulse rate ranged in the 90's—the highest being 100, despite the fact that he consumed approximately six and one half pints during these three days. On the morning of June 28th he stated that he did not want any more whiskey and that all he wanted was something to quiet his nerves. That noon he had an emesis of bright red blood, but the following morning (June 29) he felt much better and was so docile that his sister thought he was worse, since she had always seen him wild and unruly. He was discharged from the Hospital on that date."

The use of 6½ pints of whisky over a three day period should satisfy any but the exceptional drunkard; it is not at all surprising that he had no desire on the third day for anything except something to "quiet his nerves." Since this patient was discharged at this time and further data concerning him are not given, the evidence of the effect of this preparation on his habits is completely inadequate. In spite of this, the doctor on whose stationery this case is mimeographed summarizes as follows:

"From my experience with this patient, who no doubt was a heavy drinker for at least three years to our knowledge, the use of Private Formula Whiskey was of definite therapeutic value. To summarize what in my opinion are the important facts:

"1. There were no prohibitions put on the one and only thing that the patient wanted, and there were no prohibitions placed on the amount that he could drink. As a result his whole-hearted cooperation and confidence were gained, and certainly these are necessary in treating such a patient.

"2. He lost the taste for whiskey, and could not be persuaded to take another drop. In fact the patient was quite pleased about it, and even told the nurses that they should never bring any more whiskey into his room.

"3. He suffered no headache or hang-over, and his pulse rate was not alarmingly increased.

"4. No sedatives or hypnotics were necessary for sleeping or restlessness during the administration of Private Formula Whiskey.

"5. He became a gentleman instead of being wild and unruly.

"At this writing I have observed in consultation the use of this Whiskey in three other patients, and the results obtained have been similar. The clinical records are not available at present, so I am unable to report them. However, one of these patients was on the border line of Delirium Tremens, and the use of Private Formula Whiskey controlled the condition very remarkably much to the amazement of the Attending Physician. I do not think that definite scientific conclusions should be made from such a small number of cases, but certainly they reasonably demonstrate the efficacy of Private Formula Whiskey as a positive therapeutic aid in the treatment of Chronic Alcoholism."

Everything under the sun has been used in the attempt to cure drunkenness, inebriation and chronic alcoholism. The idea of using whisky in unlimited quantities, however, whether or not it contains the various impurities which this manufacturer claims to have reduced, is preposterous. As far as we know, the only way to "fix up" whisky so that it does not produce drunkenness, inebriation and eventually habit in some individuals who become addicted to it is to remove the alcohol—and then it isn't whisky.

While this method of treating alcoholism may become popular with alcoholics, the continued use of this product will not lead to either sobriety or abstinence. The promotion of this product in the complete absence of satisfactory evidence is a triumph of ingenuity and imagination but it is certainly not scientific.

Correspondence

AN UNFORTUNATE SITUATION IN THE FIELD OF BACTERIAL CHEMOTHERAPY

To the Editor:—In spite of the hopeful outlook in the field of bacterial chemotherapy, certain tendencies which have become obvious in the past three years should cause grave concern to serious and thoughtful students of this subject. It may be opportune to call attention to several of these in the hope that all concerned may attempt to combat these pernicious tendencies which threaten to delay advance in a field of so much importance to the health of mankind. The meaningless therapeutic experiments on mice which are constantly being published by investigators of presumably good scientific standing, the administration to human beings of chemical compounds before any detailed information of the chemical structure and properties of such compounds has been made available to medical investigators or practicing physicians, and the use of drugs in sick human beings before adequate toxicologic and pharmacologic investigation on animals is available can only impede true progress and lead to unnecessary human suffering and death.

A new and promising field is always immediately invaded by workers from other fields. Results must be obtained over night and reputations made (or blasted) in a month. Instead of the time-honored slow and laborious method of reaching conclusions, some short-cut method is adopted without the investigator (we hope so, at least) being aware that the experiment cannot yield an answer to the question at issue. Almost every week one sees articles which describe the attempts of an investigator to compare either two or more methods of administering the same drug or two or more drugs administered by the same method as to their therapeutic efficiency on some experimental bacterial infections of mice, but the investigator uses such a limited number of animals that his conclusions are unjustified. The experiments cause other workers a loss of time and effort and frequently are taken over into the clinic with unsatisfactory or even disastrous results. Many of the investigators who have entered this field have made no attempt to evaluate the significance of their figures or to analyze and test their meaning by even an elementary statistical technic.

To decide if a new compound is active as an antibacterial agent in mice, only a few animals are necessary provided the untreated controls all invariably die in a few days. Prolongation of life or survival of some of the treated animals gives an unequivocal answer to the question. But this answer is only a qualitative one and with a few animals no statement can be made as to the relative efficiency of two drugs or two different methods of administering the same drug. The number of mice which it is necessary to use to answer such questions will depend on the magnitude of the difference. Thus, for example, when two groups of six mice are used and one mouse in one group and five in the other survive, the probabilities of such a difference being due to chance are about 1 in 10. With ten mice in each group the death or survival of three in one group and seven in the other is not statistically significant, since divergences as extreme as this are likely to occur by chance about one in six times.

If investigators refuse to recognize the simplest statistical principles, I suggest that the editors of reputable journals refuse to accept the manuscripts of such investigators and inform them in no uncertain terms of the inadequacy of their results. The difficulties which are involved in accurately assessing two procedures of treatment or two different drugs are many, but those which are due to an insufficient number of animals should not be countenanced.

The identity and purity of a chemical compound to be used as a drug and administered to human beings have not been accorded the attention they deserve from the physicians who order the administration of the drug. Recently a compound stated to be 2-sulfanilamidopyridine was found to be extremely effective in pneumococcic infections in mice. Quickly this compound was tried in pneumonia in man with apparent beneficial results. The drug is still under trial and is being administered to thousands of sick persons, but as yet no description of the substance has been published. The proof of its chemical structure, analyses for purity and chemical properties are withheld from investigators and physicians who are using the drug. Obviously this is due to the patent situation with regard to new drugs.

Another serious situation is the fact that new drugs are introduced into human therapy before an adequate toxicologic study of their properties has been performed on animals. The need for this appears obvious but there has been a tendency in the clinical literature on sulfanilamide derivatives to take the point of view that toxicity experiments carried out on animals are of little use in determining the toxicity of this group of drugs for the human being. These statements are based on the fact that many toxic reactions are seen in patients when the drug is administered which could not be predicted from animal experimentation. This is no new thing to pharmacologists but has been known almost since the birth of scientific pharmacology. I know of no case in which the toxicology and pharmacology of a new drug have been satisfactorily worked out even in a preliminary way by a competent pharmacologist and the drug found to be dangerous for clinical use that clinical trial has reversed this opinion. I need only refer to the recent instance, which is fresh in the minds of all physicians, of the wholesale slaughter of patients by the use of a solution of sulfanilamide dissolved in diethylene glycol. A few simple animal experiments could have avoided this disaster.

One could quote hundreds of instances in which chemical compounds possessing some desirable therapeutic effect have been discarded for clinical trial because preliminary animal experiments indicated that the drug would be highly dangerous and too toxic for human use. The reverse of this proposition is, however, not true. Even when a drug has been subjected to a complete and adequate pharmacologic investigation on several species of animals and found to be relatively nontoxic it is frequently found that such a drug may show unexpected toxic reactions in diseased human beings. The reason for this difference is, I believe, threefold: With the higher development of man, it is to be expected that many drugs will prove more toxic for man than for the lower animals. Second, there is every reason to believe that one will find more hypersensitive individuals to any given drug among diseased human beings than among a group of laboratory animals. Indeed, it is quite probable that many drugs are more toxic to the diseased than to the normal individual. Third, it is known that idiosyncrasies occur in normal and diseased human beings and so far this has not been predicted by animal experimentation. In spite of this, adequate pharmacologic investigation on animals is necessary.

Should more argument be needed for the importance of the proper support of pharmacology in our medical schools, it is certainly furnished by the recent history of bacterial chemotherapy. Owing to the almost miraculous therapeutic results which have been obtained with the sulfonamide group of drugs in infectious disease, it is certain that stupid and unscientific use of these and similar new drugs will be attempted in the future. A recognition of the value of pharmacology in connection with the development of a drug as a chemotherapeutic agent is essential, if disastrous results are to be avoided.

E. K. MARSHALL JR., PH.D., M.D., Baltimore.

Queries and Minor Notes

THE ANSWERS HERE PUBLISHED HAVE BEEN PREPARED BY COMPETENT AUTHORITIES. THEY DO NOT, HOWEVER, REPRESENT THE OPINIONS OF ANY OFFICIAL BODIES UNLESS SPECIFICALLY STATED IN THE REPLY. ANONYMOUS COMMUNICATIONS AND QUERIES ON POSTAL CARDS WILL NOT BE NOTICED. EVERY LETTER MUST CONTAIN THE WRITER'S NAME AND ADDRESS, BUT THESE WILL BE OMITTED ON REQUEST.

FEVER AT ONSET OF MENSTRUAL PERIOD

To the Editor:—A white married woman, aged 26, had both tubes, the right ovary and the appendix removed in March 1935 following rupture of an ecoptic pregnancy. For about a year thereafter her menstrual periods were apparently normal with no dysmenorrhea. Then, for no apparent reason, she began having severe cramps at her periods and fever as high as 103 F., beginning an hour or two after the onset of the menses and lasting three or four hours, subsiding as suddenly as it had arisen. Nausea and occasional vomiting and gas on the stomach are concomitant symptoms. There are no intermenstrual symptoms. Urinalysis is normal and the patch tuberculin test is negative. Pelvic examination reveals an anteflexed uterus with normal cervix. What could cause such a transitory high fever and what method of treatment should be used?

EDITH PETRIE BROWN, M.D., Bedford, Ohio.

ANSWER.—It seems probable that this patient's symptoms and fever are due entirely to a pelvic disorder and not to exacerbations of some systemic disease (such as tuberculosis) during the catamenia. The first possibility that suggests itself is a uterine fistula which allows the escape of menstrual blood and detritus into the peritoneal cavity. Such a fistula might follow imperfect healing of the uterine cornu after excision of the tubes. A uterine fistula would account for the fever (peritoneal reaction to free blood). Endometriosis, which would be expected as a sequel to the fistula, would account for the dysmenorrhea. Cervical atresia, or kinking of the cervical canal due to extreme flexion of the uterus, would favor the passage of blood through the fistula. In studying this patient one would first make careful vaginal and rectal examinations with endometriosis in mind. The discovery of nodules in the culdesac would be suggestive, and increase in the size and tenderness of these nodules at the time of menstruation would be strongly suggestive of endometriosis. The cervical canal should be sounded and should be well dilated if there is any evidence of blockage. A Rubin test would show any communication between the uterine and the peritoneal cavities. Should such a communication be found, it should be further studied by x-rays to try to determine whether a fistula or a short segment of tube is present. Uteroperitoneal fistulas should be closed as a prophylaxis against endometriosis. The fistula is easier to locate and excise if methylene blue solution is injected into the cervical canal under pressure immediately before or just after the abdomen is opened. Care should be taken to excise or destroy any endometrial transplants found, especially those in the fistulous tract (salpingitis isthmica nodosa) in the hope of relieving the dysmenorrhea. Every effort should be made to provide a free cervical passage for the menstrual flow. The cervix should be widely dilated and any extreme flexion of the uterus should be corrected. As presented, the history does not suggest simple pelvic inflammatory disease or periodic pyelitis, but these possibilities cannot be ruled out from the data available.

DEXTRINS IN DIET

To the Editor:—Please give opinions pro and con on the use of dextrins in infants and adults. Has any work ever been advanced showing the harmfulness of dextrons? D. T. LINDQUIST, M.D., Palo Alto, Calif.

ANSWER.—Dextrins are polysaccharides intermediate between starch and maltose. They are not fermented by most intestinal bacteria, but they are readily converted into maltose through the action of enzymes normally present in the intestinal tract. Commercial dextrin is usually a mixture of various dextrins.

It is believed that the usefulness of dextrins in infant feeding can be attributed in part to the gradual formation of maltose which, when hydrolyzed into dextrose, is absorbed. Hence when dextrins are fed there is not at any one time an excess of fermentable carbohydrate in the intestinal tract. The Council on Foods (THE JOURNAL, May 29, 1937, p. 1890) has pointed out that the carbohydrate preparations used in the artificial feeding of infants can conveniently be divided into three groups: pure sugars, hydrolyzed starch preparations and mixtures. The dextrins, of course, are obtained by the partial hydrolysis of starch. It is interesting to note that it was the consensus of the Council, in the light of evidence available, that the choice of a sugar for use in infant feeding is of relatively minor impor-

tance as compared with other problems of infant feeding; but in individual cases it might be desirable to select one sugar over another.

Administered in reasonable amounts, dextrin should have no toxic action for either infants or adults.

DERMATITIS FROM "CORE"

To the Editor:—I have two cases of severe dermatitis in young, healthy men, truck drivers, who recently acquired this condition following exposure to some form of chemical transported in bags, which sifted down on them, in their sleeping quarters in transit. The material is known to the commercial trade as "core" and is shipped and used regularly in foundries. The patients present a generalized dermatitis of the face and neck, the parts exposed during sleep to the reaction of the chemical. No other portion of the body is involved either symptomatically or clinically. They state that the powder is fine and black and that it completely covered their faces and necks during the hours of sleep. No symptoms were experienced until after washing the face in the morning. At the present time they are complaining of intense burning of all exposed areas of the hands and face but the scalp. Can you advise me what chemical is commonly used by foundries which might produce this condition?

P. W. FLAGGE, M.D., High Point, N. C.

ANSWER.—The term "core" is not sufficient to identify fully any particular commercial product. However, in foundry practice cores are commonly made up of sand, bound together by some adhesive material, and are made stable by baking. A number of binders are available, including granular pitch. This core material may not consist entirely of granular pitch but instead may be mixed with finely ground bituminous coal called "sea coal." The "sea coal" may be regarded as an adulterant, but it may serve a useful purpose in limiting the hardness of the core after contact with hot metal. Tars, dextrin and molasses are also used as core binders. Cores are sometimes washed with suspensions of graphite or plumbago. Mention in the query that the irritating substance to which exposure occurred was black prompts the belief that the particular core material was a powdered pitch, tar or asphalt with or without powdered bituminous coal. Any one of these three substances might produce a dermatitis, particularly when the exposure is to fine particles. If the assumptions in this reply are correct, no persistent effects may be expected and prompt recovery after the acute episode may be anticipated.

ESTROGENS AND HYPERTENSION

To the Editor:—Three years ago, following a series of administrations of estrogen (5,000 international units) for menopausal flushes, the patient's blood pressure dropped from 190 to 140 and remained at the lower level. Since then I have treated eight other patients with estrogen and have noted the same drop in blood pressure. In some cases this lowered blood pressure persisted for more than a year after the treatment was terminated. I also purposely treated with estrogen a man aged 52 with malignant essential hypertension and a systolic blood pressure of 210. His blood pressure fell 30 points. The type and degree of the cardiovascular conditions in the patients varied. Some were of ten years' duration and accompanied by considerable cardiac and kidney changes, yet a systolic and diastolic drop was effected in every one of these cases. I attributed this effect to the "suppressive" action of the estrogen on that part of the pituitary responsible for control of blood pressure. I would appreciate your comment.

M.D., New York.

ANSWER.—The vasodepressor activities of estrogens have been repeatedly observed, although it is but recently that clinicians have had available relatively pure preparations of the various pituitary and ovarian fractions. In 1916 Culbertson (*Surg., Gynec. & Obst.* **23**:667 [Dec.] 1916) suggested that the climacteric type of hypertension and vasospasticitiy might be due to associated secretory changes in the pituitary. Similar changes in thyroid and adrenal activity are also to be considered. There is also evidence that normal ovarian secretion has a vascular sedative action. Alvarez and Zimmermann (*Arch. Int. Med.* **37**:597 [May] 1926) pointed out that in young women with abnormal menstrual cycles the average arterial tension is found higher than in the normal. The type of hypertension associated with the menopause is of a spastic, variable character and is greatly affected by the emotions (Maranon, Gregorio: The Climacteric, edited by Carey Culbertson, translated by K. S. Stevens, St. Louis, C. V. Mosby Company, 1929). Similar "emotional hypertension" is frequently observed in patients with abnormal sexual appetites, especially among those with borderline nymphomania (Stieglitz, E. J.: *Am. J. M. Sc.* **179**:775 [June] 1930).

More recent studies (Liebhart, S.: *Zentralbl. f. Gynäk.* **58**:1896 [Aug. 11] 1934) on the clinical administration of follicular extracts reveal that it is effective in hypertensive women entering the menopause. Its application to other forms of hypertension has been, on the whole, much less satisfactory.

It must be reemphasized that hypertensive arterial disease is due to many etiologic factors; that frequently there are several provoking factors superimposed in the same patient and that each and every case of the disease must be treated as an individual problem. The variable results recorded in the query illustrate this. That endocrine disturbances not infrequently are etiologic factors in hypertensive disease is true, but not in every instance by any means. With careful diagnostic analysis it is possible to elicit many contributing or provoking etiologic factors in a series of hypertensive patients. Perhaps such analysis is the most important aspect of effective therapy. It must be anticipated that in many cases the therapeutic results from the administration of estrogen will be disappointing.

POLYGRAPH OR "LIE DETECTORS"

To the Editor:—I should like to know where I can obtain a "lie detector" and literature concerning it. Are lie detectors for sale on the market?

M.D., Kentucky.

ANSWER.—There is actually no "lie detector" and the present status of this whole question is controversial. Much of the existing chaos is due to the fact that although the principles underlying this field of research, the translation of emotional reactions into physiologic terms, are usually identical, machines are being patented, exploited for the most part by nonmedical men and sold to operators interested either in psychology or in medicine. Yet this apparatus involves the most complicated forensic clinical principles and instruments of precision. Usually a brief period of instruction of two or more weeks or mailed directions are given by those selling the machines, with attempts by them to control all further work carried out by the operator. One inevitable result is that the majority of those operating lie detectors for the police departments and commercial firms have no knowledge of underlying principles and are using the method as a psychologic third degree. Unfortunately, the same operators are now giving instructions, advertising "lie detectors" and some of the leaders, besides exploiting machines, are pictured in current magazines advertising commercial products.

Before purchasing any apparatus or conducting any experiments, one should consult the following minimum references:

Burtt, H. E.: Legal Psychology, New York, Prentice-Hall, Inc., 1931. The author is professor of psychology at Ohio State University, Columbus, Ohio.

Larson, John A., in collaboration with Haney, George W., and Keeler, Leonarde: Lying and Its Detection, University of Chicago Press, 1932; includes twenty-three pages of bibliography.

Reichsmid, Christian A.: The Psychology of Feeling and Emotion, New York, McGraw-Hill Book Company, Inc., 1936. The author was formerly professor of psychology at University of Iowa.

Goldstein, Irving: Trial Technique, Chicago, Callaghan & Co., 1935, pp. 13-19. The author is instructor in trial technic, Northwestern University School of Law.

Marston, William: The Lie Detector Test, New York, Richard R. Smith, 1938. Since this book contains sweeping statements, the following reviews should be consulted also: Larson, John A.: *Iowa Law Review* **23**: 451-453 (March) 1938. Inbau, Fred: *Journal of Criminal Law and Criminology* **29**: 305 (July-Aug.) 1938.

The apparatuses at the present time being exploited as "lie detectors" include:

The "Keeler Polygraph," patented by Leonarde Keeler, formerly of the Crime Detection Laboratory at Northwestern University, now taken over by the Chicago Police Department, including the apparatus and personnel with the exception of Mr. Keeler. The machine is manufactured by the Western Electric and Mechanical Company Incorporated, Oakland, Calif. The price was formerly $450. Recently there has been added a galvanometer.

The Lee Polygraph or "Berkeley Psychograph," Lee and Sons, 1909 Delaware Street, Berkeley, Calif., $250. This apparatus is the simplest to operate and mostly approximates the principles and polygraph used by Larson from 1923 to 1927.

The Darrow photopolygraph, $1,000, manufactured by the Stoelting Company, Chicago. This is the most complete apparatus available for research purposes. Included are the respiratory changes, vasomotor and blood pressure changes as recorded in the modified Thomas Polygraph, Lee and Keeler polygraphs, the Luria tremographs and voice keys (The Behavior Research Photo-Polygraph, *Journal of General Psychology* **7**:215, 1932). This is also described as Lie Detector: (An Improved Lie Detector: Darrow Photo-Polygraph, *Police* **13**:13 [April] 1935). However, complaints have been received that this apparatus is much too complicated for practical procedure. To this Darrow may add a continuous quantitative method of determining blood pressure.

The "Pathometer." A psychogalvanometer devised by Father Summers, recently deceased, of the department of psychology of Fordham University. A picture of this was printed in the *Saturday Evening Post*, May 21, 1938, in connection with a commercial advertisement. The claims made for the apparatus which is in use at Fordham University and by the Michigan State Police Department have been strongly criticized by Marston in his book and in more detail by Jordan (Evidence Admissibility of Deception, *Journal of Criminal Law and Criminology* **29**, No. 2, 1938). Samuel Renshaw and Bernard Higley describe "An Improved Device for the Continuous Pneumatic Recording of Respiration and Changes in Blood Pressure" (*Journal of Psychology* **4**:281, 1937).

Larson reports satisfactory experimental results from the usage of a modified Thomas polygraph made by Earl Bryant of California. He does not regard as satisfactory any of the apparatuses now on sale with implications that they are "lie detectors." He feels that the psychogalvanometric method alone has not as yet proved its efficacy in criminologic work.

Hoover's conservative impressions may be found in "Scientific Methods of Crime Detection in the Judicial Process."

PRURITUS ANI

To the Editor:—A man aged 45 has had pruritus ani for fifteen years. His general physical examination and routine laboratory tests, including the Wassermann test, have all been negative. He has had some small internal hemorrhoids, which have reacted satisfactorily to the injection of quinine and urea solution. The treatment of the pruritus has included roentgen therapy, injection of alcohol and nupercaine with benzyl alcohol in almond oil. An autogenous vaccine has been made from his stool and has been used with complete failure. Gentian violet solution made the condition worse and caused a stubborn eczema to develop. I advised that he has reached the stage where surgery (Ball operation) offers the only hope for success. Could you suggest anything less radical but affording some hope of cure?

A. A. SKEMP, M.D., LaCrosse, Wis.

ANSWER.—A careful search should be made for a fungous infection of the skin, which not infrequently occurs and which would respond to Whitfield's ointment. The injection of alcohol through multiple punctures about one-half inch apart, from 1 to 2 minims (0.06 to 0.12 cc.) being injected in each puncture throughout the area of dermatitis at a level of about one-half inch below the skin has been just as effective as the Ball operation. One should also make sure that there are no infected crypts, that the patient has no diarrhea, that he does not have a fermentative stool with frequent passage of gas, and that he does not take liquid petrolatum. It is highly important that nothing come in contact with the skin but moist detergents and that the skin be kept scrupulously clean with soap and water. The measures should be tried before further operation.

EXTRAVASATION OF ARSPHENAMINE—PRURITUS AFTER ARSPHENAMINE

To the Editor:—Aug. 11, 1938, I gave a patient an intravenous injection of 0.6 Gm. of neoarsphenamine. Unfortunately, owing to the patient's restlessness, some of the solution entered the tissues around the elbow. At the present time there is a small, hard, red lump that at times is painful and itchy and annoys the patient. Can you suggest a procedure to relieve this condition? After the ninth injection the patient developed a generalized pruritus without any dermatitis. I am giving him intravenous injections of 10 per cent calcium gluconate as well as external applications of 0.25 per cent phenol in olive oil. Is this the proper procedure?

M.D., Connecticut.

ANSWER.—Regarding the first question, further treatment is not required. Extravasation of one of the arsphenamines produces a localized cellulitis which may be sufficiently intense to break down and suppurate. If this can be avoided, however, the condition is then self limited and will in time subside, although it may require several months for the subcutaneous scar tissue to be absorbed. After the acute stage is over, local treatment is useless and attempts at surgical intervention merely serve to make the situation worse.

With the meager information furnished, an accurate answer to the second question is more difficult. Generalized itching developing after an injection of an arsphenamine product is usually a danger signal warning the physician that further treatment with an arsphenamine must be given with the greatest caution and only after intravenous testing, in the manner described by H. M. Robinson (Intravenous Testing in Post-arsphenamine Dermatitis, *South. M. J.* **29**:411 [April] 1936), has demonstrated tolerance to the drug to be employed. This type of itching, however, is short lived, seldom lasting more than from twenty-four to forty-eight hours unless it is followed by a generalized eruption. It does not require treatment.

SMALL DOSES OF INSULIN IN OTOLARYNGOLOGY

To the Editor:—What information can you give me regarding the use of insulin in ear, nose and throat disorders, especially chronic otitis media?

HENRY H. AMSDEN, M.D., Concord, N. H.

ANSWER.—D. C. Jarvis of Barre, Vt., has written a good deal on the use of small doses of insulin in ear, nose and throat disorders. The basis on which he makes his recommendations is in part theoretical and in part his own clinical experience and that of a correspondence study group. One may, of course, not agree with theoretical considerations and still have to pay attention to the claims of experienced clinicians when these claims are based on careful study of patients. Knowledge gained this way is frequently discovered in later years to have a sound basis in fact even though the theory proposed may be found faulty. However, in this case much more confirmatory evidence is needed.

The best exposition on the use of small doses of insulin in ear, nose and throat practice is to be gained from the writings of Jarvis himself. A recent article entitled "Small Doses of Insulin in Otolaryngologic Practice: Clinical Experience of a Correspondence Study Group" appeared in the *Archives of Otolaryngology* in July 1937.

In general the proponents of the "oxygen metabolism theory" state that small doses of insulin are useful in common colds both for prophylaxis and for treatment. They have been found of value in excessive nasal secretion and in the treatment of nasal polypi and acute and chronic otitis media as well as in other conditions. The curative value of small doses of insulin in cases of chronic otitis media in which the usual methods of treatment have failed is attested by a number of competent observers. The usual dose is three units given subcutaneously daily with a lengthening of the interval as clinical improvement takes place. Eventually the insulin may be given no oftener than once a week and continued for months.

ANGINA PECTORIS IN PAINTER

To the Editor:—A man who has worked fifteen years as an automobile painter presents a probable angina pectoris syndrome. Symptoms began three months ago and have progressively become more severe. An attack is usually brought on by physical exertion; for example, while walking to work. Emotional incidents have also produced the same effect. It begins with a sick feeling in the lower part of the chest and afterward changes to a burning sensation in the same region, ascending to the anterior part of the chest and radiating to the back and down both arms to the elbows, being more severe on the left. He also presents a general muscular wasting beyond his increasing years. He is 48 years of age and is generally high strung and apprehensive. The blood pressure is 105 systolic, 60 diastolic. For the last twelve years he has had many abscessed teeth and a few remaining lower ones are abscessed and decayed. The rest of his physical examination is essentially negative. Blood count reveals red blood corpuscles 5,380,000, white blood corpuscles 12,950, hemoglobin from 95 to 100 per cent (Tallqvist). The blood Wassermann reaction is negative. Urinalysis is negative. He has used many varieties of paint during the last fifteen years. In recent years he has been painting by the spray method. Some of the many used paints are Duco, Deluxe (synthetic enamel) and aluminum paint. He has had little contact with lead paints. I would appreciate any information you may have that would explain the possibility or impossibility that paints as described might be the cause of this clinical picture.

BARNEY LIHN, M.D., Vineland, N. J.

ANSWER.—Angina pectoris cannot be regarded as a characteristic occupational disease among painters, although Gerbis (*Arch. f. Gewerbepath. u. Gewerbehyg.* **7**:421, 1936) has described angina pectoris resulting from the inhalation of trichlorethylene in another industry. On the other hand, hand painting and spray painting in the absence of suitable protective devices must be reckoned as associated with far more exposures than most occupations. This is less true in the present decade than it was for periods twenty or thirty years ago. This betterment is due to the use of less toxic materials in paints in later years. Among old time painters, the degenerative diseases are highly prevalent and the onset of such degeneration is earlier than for workers in general.

The National Tuberculosis Association in 1934 reported a much higher frequency of heart disease as a cause of death among painters than for selected other trades and for all occupations. In a hundred thousand gainfully occupied men the death rate from heart disease for painters was 247.3 and for all occupations 174.4. The corresponding death rate from nephritis was 89 for painters against 57.6 for all occupations. Likewise deaths from cerebral hemorrhage were more frequent among painters than for all occupations.

In this instance the angina pectoris described probably is not the result of working with any particular substance common to the painters' trade and possibly is unrelated to work in any respect as a direct cause. However, it is undoubtedly true that this painter has been exposed in the course of many years of

painting work to a fair number of substances which might have exacted some toll from his body. The number of possible agents includes benzene, toluene, lead, arsenic, chromates, naphtha, aniline oil, paranitraniline, acetates, esters and ketones. The substances mentioned in the query, such as Duco, are perhaps less harmful than other substances in wide use were two or three decades earlier. It is quite impossible to attribute this condition to any particular material found in the painter's work, but it may be recognized that painting as a trade leads to some deleterious effect on life and well being.

INHALATION OF "BLACK FLAG" OR PYRETHRUM

To the Editor:—A white woman aged 73, while spraying flies with "black flag" about six weeks ago, inhaled some vapor of the spray and noticed immediately severe burning sensations in the nose, throat and the pit of the epigastrium in the order given. Ever since then she has been complaining of these unpleasant sensations. She also has hypertension and noises in her ears. She has been treated for the hypertension and has improved as far as the head noises and circulation are concerned. An anemia found two weeks after her so-called poisoning (I did not see her before that) has improved also. In spite of all types of antacid medication she still appears to suffer enormously. Inhalations of tincture of benzoin give transient relief. X-ray examination does not show any abnormality except for a severe ptosis of the stomach. What is the composition of "black flag"? Are there any chemicals in its composition that might be injurious to a human being? If so, what antidotes are desirable? If it is necessary to have the contents of this can of "black flag" analyzed, where can I have it done and at what fee? M.D., Vermont.

ANSWER.—In THE JOURNAL July 12, 1930, page 111, a case of black flag dermatitis associated with some systemic involvement is described by Sulzberger and Weinberg. On chemical analysis the responsible insect powder showed the presence of pyrethrum. Pyrethrum insect powder is derived from the pulverizing of buds of certain varieties of chrysanthemums. The pyrethrum industry flourishes in Dalmatia, California and Japan, among other places. This powder contains an effective insecticidal agent, when used as such, or the active principal may be chemically extracted. Many of the commoner household insect sprays represent an extract of pyrethrum with naphtha, deodorized kerosene or related petroleum derivatives. At least in times past, chlorinated hydrocarbons have been utilized in the manufacture of some sprays.

Granting that pyrethrum is a severe local irritant, it is surmised that in the instance cited the immediate discomfort following inhalation of vapor was chiefly due to the action of the leaching liquid, probably a naphtha or naphtha-like body. Such vapors may irritate the nose and throat, but it is most unlikely that hypertension, head noises or anemia may be traced to this casual inhalation of hydrocarbon vapors containing pyrethrum. Occasionally persons become sensitized to the constituents of spray insecticides and as long as any trace is present about the household may suffer from skin disorders or minor respiratory irritation or peculiar perversions of tastes and odors. Unless in the present instance this condition is perpetuated on an allergic basis, and if the full extent of exposure was that described in the query, it seems reasonable to dismiss this insecticide as the source of any prolonged or severe manifestations from any organic disease. The advanced age of 73 is significant and may be more important than external irritants.

There are no known antidotes, but in pyrethrum dermatitis removal from further exposure, together with palliative treatment, is usually efficacious. It would seem advisable first to ask the manufacturer if he will supply the exact composition.

HANDLEY OPERATION FOR CARCINOMA OF BREAST

To the Editor:—Is there an operation known as Handley's used to extirpate the breast? Is it a proper procedure in cancer of the breast? Would you please describe it and the rationale of its performance? Are the pectoral muscles removed? In the instance I know of they were not. THOMAS I. O'DRAIN, M.D., Philadelphia.

ANSWER.—The Handley operation for carcinoma of the breast is the one described by Sampson Handley (Carcinoma of the Breast and Its Treatment, New York, Paul B. Hoeber, 1922, p. 239; also Christopher's Textbook of Surgery, Philadelphia, W. B. Saunders Company, 1936, p. 958). Auchincloss (Christopher's Textbook of Surgery) says of this incision that "emphasis is placed on the necessity for putting the growth in the center of the incision, not only from the standpoint of the skin, but because the specimen to be removed should be similar to a bi-convex lens with the tumor in the center. This means an extensive undermining of the subcutaneous tissue and fascia. The amount of skin to be removed as recommended by Handley is not as great as that recommended by Halsted." The incision might be criticized from the standpoint of not removing enough skin. The remainder of the operation is just the same as the standard radical operation in which both pectoralis major and pectoralis minor muscles are removed. The term "Handley operation" simply refers to the skin incision, of which there are many. The fourteen principal ones are described by Auchincloss.

FUMES FROM ELECTRIC ARC WELDING

To the Editor:—A patient who does electric welding has asked regarding the toxicity of the fumes formed, he thinks, by the heat burning up the asbestos-like covering of the welding "rods." The rods go under the trade name of Lincoln Rods. S. F. MENGEL, M.D., Schuylkill Haven, Pa.

ANSWER.—Little is actually known about the fumes which arise from the coatings of welding rods, since they are in practically all instances trade secrets as to exact composition. They have been reported to contain copper, nickel, bronze, sodium fluoride, phosphorus and arsenic. Probably the chief harmful gases produced are the oxides of nitrogen, which even in low concentration are capable of producing pulmonary edema.

References:

Coltman, R. W.: Gases from Carbon Arcs, *J. Indust. Hyg. & Toxicol.* **20:** 289 (April) 1938.
MacQuiddy, E. L.; Tollman, J. Perry; LaTowsky, Leroy W., and Bayliss, Milward: The Biological Effects of Inhalation of Carbon Arc Fumes, *ibid.* **20:** 298 (April) 1938.
Combustion Products of the Carbon Arc, *ibid.* **20:** 312 (April) 1938.
Health Protection of Welders, published by the Metropolitan Life Insurance Company.

GARLIC IN GASTROINTESTINAL DISEASES

To the Editor:—I have a patient with colitis and understand that garlic is used as a treatment. Will you please give me what information you have? GERRIT MARIS, M.D., Hull, Iowa.

ANSWER.—The use of garlic (Allium sativum) as a medicine as well as a condiment can be traced to earliest antiquity, and periodically it has been exploited for this or that condition. Some years ago the use of garlic had a revival first in France and later in England, and then proprietary preparations claimed to be derivatives of garlic were put on the market. Preparations of garlic have not been shown to be of value except perhaps as irritant expectorants with local action on the stomach. The medical profession of this country appears not to have been impressed with the reported value of garlic preparations. Its use in gastrointestinal disease, especially diarrhea, constipation and colitis, is related in isolated case reports and poorly controlled trials published in the German literature. Its greatest popularity was enjoyed ten years ago and since then this use of garlic has markedly waned.

TRAUMA OVER HEALED OSTEOMYELITIS

To the Editor:—I am interested in knowing whether a contusion or bruise in the region of an old apparently healed osteomyelitis or old healed suppurative arthritis will cause development of an abscess in the overlying soft tissues. I have recently seen two cases where there has been such a flare-up. One was the development of osteomyelitis of a metacarpal bone in a patient who had an old suppurative osteomyelitis in the same foot in an adjacent metacarpal several years previously which had apparently healed. The other was a flare-up in the soft tissues overlying a latent or apparently healed suppurative arthritis of the hip. Any information on this matter would be appreciated. M.D., Wisconsin.

ANSWER.—Unfortunately, trauma to any areas covering old osteomyelitis scars is apt to produce trouble, and the patient should always be warned to avoid injury to such areas. It is particularly prone to occur in the tibia when the fatty subcutaneous tisse has disappeared and the skin is adherent to the bone. When trauma is inflicted on such an area the skin does not have the normal mobility and the full force of the blow is expended on the devitalized tissue, and even though no true infection arises the skin may be so devitalized that it sloughs.

CLIMATE FOR ASTHMA

To the Editor:—1. Could you suggest a locality in the United States which is best suited for an asthmatic patient? 2. Could you suggest any hospital or clinic in the vicinity of New England which specializes in the treatment of asthma? M.D., Rhode Island.

ANSWER.—1. The only type of asthma which is affected to any appreciable extent by climatic conditions is that which is due to respiratory infection (paranasal sinuses or bronchi, especially bronchiectasis). Asthma due to these conditions is better in a dry warm climate (New Mexico, parts of Texas, Arizona and similar regions). It is unwise to send a patient with asthma to any of these regions without a thorough study of the effect of pollens, perennial inhalants, contact substances and foods, as

in many cases no matter where the patient goes he may be taking his enemy with him.

2. There are numerous well trained men who specialize in allergic conditions all through New England, especially in the large centers, such as Boston, New York, Pittsburgh and Philadelphia. The larger hospitals in these cities have one or more men eminent in this field on their staff.

HEPTYL ALDEHYDE AND MOUSE TUMORS

To the Editor:—In the August 8 issue of *Time*, page 24, under Cancer News is an article on the active principle of wintergreen oil, heptyl aldehyde, being used experimentally by Dr. Strong of Yale Medical School for cancer in mice and dogs. How much truth is there in it and where can heptyl aldehyde be obtained?

A. GAEBLER, M.D., Chicago.

ANSWER.—There is no reason to doubt the statement of Dr. Strong of Yale University Medical School that a certain number of mouse and dog tumors have disappeared under treatment with heptyl aldehyde. There is no evidence at present that this treatment will be effective on human beings with cancer. According to Bernthaen (Organic Chemistry), normal heptylic aldehyde (oenathol) $C_7H_{14}O$, is obtained by the dry distillation of castor oil under diminished pressure. Eastman Organic Chemicals lists oenathol (Heptylic aldehyde) under Heptaldehyde B. P. 40-42°/10 mm. Heptyl aldehyde can be made by any good organic chemist; perhaps one of the large drug houses might prepare some.

EPIDERMOPHYTOSIS AND FUNGI ON DRESSED LEATHER

To the Editor:—Many employees of a local shoe plant have epidermophytosis of the hands. The leather used often has a so-called fungous bloom on it; I understand this is a true fungous growth involving the leather. What type of fungus is this? Could it infect human skin?

M.D., Indiana.

ANSWER.—The only way to answer this question is by study of the fungus by a mycologist. It is probable that several kinds will be found on different lots of leather. Although undressed hides may carry ringworm infection to those who handle them (White, R. Prosser: The Dermatergoses, London, H. K. Lewis & Co., 1934, p. 375) the fungi growing on dressed leather are more probably "tramps," those whose spores are carried by the wind. These are ordinarily nonpathogenic to man but under certain circumstances may cause disease, as in infections of the external auditory meatus.

PEROXIDES OF BODY

To the Editor:—Kindly advise me the specific names of five or six peroxides that are part and parcel of the human body and kindly state which of them are intracellular It is said that hydrogen peroxide probably does not exist as such in the human body. Simons chemistry says acetic acid is found in the secretions of some glands but does not mention the glands. Sollmann speaks of acetyl-peroxides as existing in the body but does not say where or how it is formed, and Starling speaks of the body having mixtures containing peroxides, but no book of reference in my library specifically names any intracellular or extracellular peroxides of the body. The only organic peroxides that I find specifically named are those derived from other than animal life, such as benzoyl-acetyl peroxide (benzozone, acetozone), a benzo-acetic ester, and succinic peroxide (alphozone), both of which are obtained from distillation of fossils of plant life (wood, coal).

G. W. TYRELL, M.D., Perth Amboy, N. J.

ANSWER.—A careful search of the literature up to the year 1937 failed to disclose any trace of peroxides that are part and parcel of the human body being isolated as such. The Manuel de biochimie of Pierre Thomas (Paris, Masson & Cie.) writes in confirmation with the preceding statement: "The presence of organic peroxides cannot be made evident."

AIRPLANE TRIP FOR BABY

To the Editor:—A young mother with a 6 weeks old baby wishes to take a trip of about 800 miles. Is there any reason why it would not be advisable for her to go on an airplane? The baby is a normal, healthy child. The trip would require about four or five hours of flying time.

M.D., Kansas.

ANSWER.—There should be no contraindication against a 6 weeks old baby taking a four or five hour trip by airplane, presuming that the plane flies at a reasonable altitude. The ordinary changes in oxygen pressure, temperature, motion of the ship and other conditions met in airplane transportation should not affect a healthy, normal baby.

Medical Examinations and Licensure

COMING EXAMINATIONS

STATE AND TERRITORIAL BOARDS

Examinations of state and territorial boards were published in THE JOURNAL, January 21, page 265.

NATIONAL BOARD OF MEDICAL EXAMINERS

NATIONAL BOARD OF MEDICAL EXAMINERS: Parts I and II. Medical centers having five or more candidates desiring to take the examination, Feb. 13-15, May 1-2 (Part II only—limited to a few centers), June 19-21, and Sept. 11-13. Ex. Sec., Mr. Everett S. Elwood, 225 S. 15th Street, Philadelphia.

SPECIAL BOARDS

AMERICAN BOARD OF ANESTHESIOLOGY: An Affiliate of the American Board of Surgery. Written examination, Part I, will be held in various cities of the United States and Canada, April 8. Oral examinations for all candidates, St. Louis, May 13-14. Applications must be filed not later than sixty days prior to the date of the examinations. Sec., Dr. Paul M. Wood, 745 Fifth Ave., New York.

AMERICAN BOARD OF DERMATOLOGY AND SYPHILOLOGY: St. Louis, May, if there are sufficient applications before Feb. 1 to warrant holding an examination. Philadelphia, Oct. 30-Nov. 1. Sec., Dr. C. Guy Lane, 416 Marlboro St. Boston.

AMERICAN BOARD OF INTERNAL MEDICINE: Written examinations will be held in various parts of the United States, Feb. 20. Sec., Dr. William S. Middleton, 1301 University Ave., Madison, Wis.

AMERICAN BOARD OF OBSTETRICS AND GYNECOLOGY: General oral, clinical and pathological examinations for all candidates, Part II examinations (Groups A and B) will be held in St. Louis, May 15-16. Application for admission to Group A examinations must be on file in the Secretary's office by March 15. Sec., Dr. Paul Titus, 1015 Highland Bldg., Pittsburgh (6).

AMERICAN BOARD OF OPHTHALMOLOGY: *Written.* Various cities throughout the country, March 15 and Aug. 5. *Oral.* St. Louis, May 15 and Chicago, Oct. 7. Sec., Dr. John Green, 6830 Waterman Ave., St. Louis.

AMERICAN BOARD OF OTOLARYNGOLOGY: St. Louis, May 12-13 and Chicago, Oct. 6-7. Sec., Dr. W. P. Wherry, 1500 Medical Arts Bldg., Omaha.

AMERICAN BOARD OF PATHOLOGY: Richmond, Va., April 8-9. Sec., Dr. F. W. Hartman, Henry Ford Hospital, Detroit.

AMERICAN BOARD OF PEDIATRICS: Cincinnati, Nov. 15. Appointments must be made before July 15. Sec., Dr. C. A. Aldrich, 723 Elm St., Winnetka, Ill.

AMERICAN BOARD OF RADIOLOGY: St. Louis, May 11-14. Sec., Dr. Byrl R. Kirklin, 102-110 Second Ave. S.W., Rochester, Minn.

Illinois October Examinations

Mr. Homer J. Byrd, superintendent of registration, Illinois Department of Registration and Education, reports the written examination (graduates of foreign schools given also a practical test) held in Chicago, Oct. 18-20, 1938. The examination covered ten subjects and included 100 questions. An average of 75 per cent was required to pass. Ninety-two candidates were examined, ninety of whom passed and two failed. The following schools were represented:

School	PASSED	Year Grad.	Per Cent
Howard University College of Medicine		(1937)	79
Chicago Medical School		(1938)	78, 78, 80, 80, 81, 81, 83, 83, 84, 85
Loyola University School of Medicine		(1938)	79, 80, 82, 83, 86, 86*
Northwestern University Medical School		(1935) (1938)	81, 82, 83, 83, 83,* 84, 84,* 84,* 85, 85, 86, 86, 88
Rush Medical College		(1936) (1937)	84,* 79, 82, 84, 84,* 85, 85, 85, 86, 88
School of Medicine of the Division of Biological Sciences		(1937)	83, 83,* 85, 87*
University of Illinois College of Medicine		(1937) (1938)	83,* 76, 79, 79,* 80, 81, 81, 81,* 82,* 83, 83, 84, 84,* 85, 85, 86
University of Michigan Medical School		(1937)	79
St. Louis University School of Medicine		(1937)	84
Columbia University College of Physicians and Surgeons		(1934) (1935)	84, 79
University of Oregon Medical School		(1937)	80*
Medical College of the State of South Carolina		(1933)	86
Marquette University School of Medicine		(1938)	80
University of Wisconsin Medical School		(1935) (1936)	84, 80*
University of Toronto Faculty of Medicine		(1926) (1937)	83, 83*
Karl-Franzens-Universität Medizinische Fakultät, Graz		(1937)	81
Christian-Albrechts-Universität Medizinische Fakultät, Kiel		(1918)	78
Friedrich-Wilhelms-Universität Medizinische Fakultät, Berlin		(1923) (1927)	77, 81, (1929) 77
Johann Wolfgang Goethe-Universität Medizinische Fakultät, Frankfurt-am-Main		(1930) (1933)	80, 84*
Julius-Maximilians-Universität Medizinische Fakultät, Würzburg		(1935)	78
Ludwig-Maximilians-Universität Medizinische Fakultät, München		(1905) (1937)	79, (1906) 81, 80*
Rheinische Friedrich-Wilhelms-Universität Medizinische Fakultät, Bonn		(1925)	78*
Schlesische-Friedrich-Wilhelms-Universität Medizinische Fakultät, Breslau		(1924)	78
Regia Università degli Studi di Bologna. Facoltà di Medicina e Chirurgia		(1935)	80

School			
Regia Università degli Studi di Firenze. Facoltà di Medicina e Chirurgia	(1935)		82
Regia Università degli Studi di Roma. Facoltà di Medicina e Chirurgia	(1937)		78
Regia Università di Napoli Facoltà di Medicina e Chirurgia	(1935)		77
Universität Bern Medizinische Fakultät	(1936)	76, (1937)	77

School	FAILED	Year Grad.
Friedrich-Wilhelms-Universität Medizinische Fakultät, Berlin		(1923)
Regia Università degli Studi di Roma. Facoltà di Medicina e Chirurgia		(1933)

Thirty-two physicians were successful in the practical examination held for reciprocity and endorsement applicants in Chicago, October 20. The following schools were represented:

School	PASSED	Year Grad.	Reciprocity with
University of California Medical School		(1935)	California
University of Colorado School of Medicine		(1937)	Colorado
Howard University College of Medicine		(1936)*	Tennessee
Loyola University School of Medicine		(1937)	California
Northwestern University Medical School		(1931)*	Maryland, (1936) Indiana
Rush Medical College		(1935)	Missouri
School of Medicine of the Division of Biological Sciences		(1935)	California
Indiana University School of Medicine		(1923), (1931), (1935), (1936)*	Indiana.
State University of Iowa College of Medicine		(1936)	Iowa
University of Kansas School of Medicine		(1934)	Kansas
Johns Hopkins University School of Medicine		(1928), (1930)	Maryland
St. Louis University School of Medicine		(1918), (1929)*	Missouri
Washington University School of Medicine		(1929), (1936)*	Missouri
John A. Creighton Medical College		(1917)	Nebraska
University of Nebraska College of Medicine		(1937)	Nebraska
University of Cincinnati College of Medicine		(1936)	Ohio
University of Pennsylvania School of Medicine		(1933)	Penna.
Vanderbilt University School of Medicine		(1935)	Tennessee

School	PASSED	Year Grad.	Endorsement of
Rush Medical College		(1937)*	N.B.M.Ex.
School of Medicine of the Division of Biological Sciences		(1933)	N. B. M. Ex.
University of Louisville School of Medicine		(1931)*	N.B.M.Ex.
Tulane University of Louisiana School of Medicine		(1936)	N. B. M. Ex.
Harvard University Medical School		(1936)	N. B. M. Ex.
Washington University School of Medicine		(1930)	N. B. M. Ex.
McGill University Faculty of Medicine		(1935)	N. B. M. Ex.

*License has not been issued.

Book Notices

The Foot. By Norman C. Lake, M.D., M.S., D.Sc., Senior Surgeon and Lecturer on Surgery, Charing Cross Hospital, London. Second edition. Cloth. Price, $4.50. Pp. 366, with 113 illustrations. Baltimore: William Wood & Company, 1938.

This book is a real contribution and an invitation to members of the medical profession to increase their interest in the common ailments of the feet. In his preface the author refers to the comment of a reviewer of the first edition "Provided that the reader realizes that this book was not written for any one in particular (i. e., surgeons, general practitioners, students, chiropodists, etc.), he will not be disappointed." Nevertheless it seems that the author, as a surgeon, has collected and published his studies and experience primarily for the general practitioner in order to help him within his own circle of patients to handle these cases understandingly and with confidence. The author's deep interest in the foot is indicated clearly by his method of presentation. By starting with a concise discussion of the evolutionary and embryologic phases of the foot's development, it is obviously his desire to build his reader's interest on fundamental knowlege of the foot and through a process of reasoning. Also he gives a brief history of the development of shoes, which is quite relevant since they have long been regarded as a common source of foot trouble. Criticisms have suggested that his inclusion of surgical measures and of unusual diseases and anomalies confuses the purpose of the book, especially since the discussion on these points is not always carried into full detail. Such criticism seems, however, to reveal the author's real purpose of the book as one for physicians. Admittedly it would be a useful member in the library of any orthopedic surgeon. As for the general practitioner, in addition to being familiar with what logically lies within his own range of helpfulness, it is necessary that he should also have some acquaintance with the less usual and more advanced conditions and their treatment. Otherwise he could not make recommendations to his patients as intelligently whenever more specialized surgical or orthopedic services were required. Although the book covers the disorders of the skin, nails, toes and foot generally, the presentation of the functional disorders, affecting the longitudinal arch and metatarsal region, deserves special mention. Here, instead of a didactic repetition of orthodox views, the subject is discussed in the light of newer studies from different points of view. It challenges the exercise of the reader's own reasoning powers. This is a thoughtfully prepared book by an experienced clinician and able writer.

Konstitution und Wesensänderung der Epileptiker. Von Dr. Karl Heinz Stauder, Facharzt für Nervenkrankheiten, München. Boards. Price, 10.50 marks. Pp. 196, with 31 illustrations. Leipzig: Georg Thieme, 1938.

This monograph describes studies of the constitution and character of the epileptic. It is by a specialist (facharzt) of nervous disease in the mental and nervous clinic of Professor Bumke. There are fourteen chapters divided into experimental and clinical material. The former consists of eight chapters, in which Rorschach's studies in relation to all types of epilepsy are made. The clinical portion consists of six chapters and discusses character, mental symptoms and dementia in relation to all types of epilepsy. No new contributions are made. The bibliography is by no means complete. No mention is made of good work done by Americans in this particular field. The book is much too long. It serves no more than an additional work of reference regarding all the previously published facts on epilepsy and its mental and constitutional characters.

Endocrine Therapy in General Practice. By Elmer L. Sevringhaus, M.D., F.A.C.P., Professor of Medicine, University of Wisconsin, Madison. Cloth. Price, $2.75. Pp. 192, with 39 illustrations. Chicago, Illinois: Year Book Publishers, Inc., 1938.

The recent rapid advances in the physiology and biochemistry of the endocrine glands have made it extremely difficult for the general practitioner to keep abreast of the diagnostic methods and of the potent therapeutic products of glandular origin which are available to him. This is rendered even more difficult by the necessity for distinguishing between the theoretical and the practical, the proved and the untried, the true and the false, in the confusing welter of periodical literature and commercial exploitation which assails the conscientious student of medicine. This book is intended to summarize the facts which may be accepted as proved in the present state of our knowledge and to apply these facts to the diagnosis and treatment of endocrine disorders, as far as they can be applied by physicians in general practice. The author is to be congratulated on the degree to which he has fulfilled his purpose. This volume is simply written, systematically arranged and well illustrated with excellent photographic plates of typical cases of endocrine dysfunction. Beginning with two short chapters on the biologic significance of hormones and an outline of systematic endocrinology, the author then treats each gland in turn. Syndromes are described, diagnostic procedures outlined, potent endocrine preparations listed and dosage given. An index is appended for rapid reference. This is not a book for the scientific investigator or the specialist in endocrinology nor can it be expected to remain up to date for long. But it is a book which every general practitioner might read, with pleasure and profit, at this time.

Posibilidades radiograficas en el cáncer de la laringe. Por Pedro Regules, profesor agregado de oto-rino-laringología, y Nicolas L. Caubarrere, jefe de servico de radiología del Ministerio de salud pública. Trabajo presentado en el XII reunión anual de la Sociedad rioplatense de otorinolaringología (28 y 29 de Enero de 1938). Paper. Pp. 72, with 76 illustrations. Montevideo: The Authors, 1938.

The authors review the radiographic examination in tumors of the larynx as suggested and studied by Coutard since 1922, adding to this the advantage of the recent study of the larynx by planigraphy or tomography. They arrive at the conclusion that the lateral view is indicated in cancer of the superior portion of the larynx as well as in the anterior subglottic tumors. They advise planigraphy in tumors of the medial portion of the larynx and in lateral subglottic tumors. The paper is illustrated with a large number of roentgenograms and drawings of the clinical conditions.

Modern Surgical Technic. By Max Thorek, M.D., K.L.H., K.C., Prof. Clinical Surgery, Cook County Graduate School of Medicine, Chicago. With a foreword by Donald C. Balfour, M.B., M.D., LL.D., Head of Section in Division of Surgery, The Mayo Clinic, Rochester, Minnesota. Complete in three volumes. Volume I: General Operative Considerations; Surgery of the Head and Neck and Plastic Surgery. Volume II: Surgery of Nerves, Vessels, Bones; Surgery of Breast and Chest. Volume III: Abdominal Surgery, Hernia, Genito-Urinary and Gynecologic Surgery. Cloth. Price, $33 per set. Pp. 526; 527-1229; 1231-2045, with 2,174 illustrations, originals principally by W. C. Shepard. Philadelphia, New York, Montreal & London: J. B. Lippincott Company, 1938.

If it is possible to write a "stream-lined" modern version of surgical procedure and art, this three volume edition comes close to the mark. Surgery has reached a state of minute subdivision and there are now specialists in the surgery of individual organs. A vast literature has grown up in each of the various fields. The author has tried to dispense as much as possible with needless discussion. The work is divided in the usual manner into topographic divisions including the head and neck, chest, breast, hernia, abdominal surgery, pelvic and genito-urinary. Other portions include bones and joints, the neglected field of amputations, and other accessory information necessary to the surgeon.

This work reflects the author's experience. Much space is devoted to his method of electrocoagulation of the gallbladder. However, he follows this with an excellent description of Maingot's technic. He departs from usual conservative procedure in advocating a minimum of drainage following cholecystectomy, and he certainly understresses the necessity of examining the biliary tract at operation on the biliary system. Since this is a book which will appeal a great deal to the general practitioner who must also concern himself with surgery, his remarks on appendectomy and especially with regard to the McBurney incision and treatment of appendical stumps are highly pertinent. In the main, the usual accepted procedures are well described and the author gives full credit to the historical originators of an operation and his own and others' variations. The listed comments of various surgical authorities on the advantages or disadvantages of the methods described are a fascinating feature and acquaint the reader with a number of surgical personalities.

A working description of the anatomy accompanies each section in order to reacquaint the surgeon with the area. A fine feature is the diagrammatic description of the local anesthesia useful in that particular locale and for the various procedures to be attempted. This is in addition to the chapter on general and regional anesthesia at the beginning of volume I. The indexing is excellent and the author has solved one annoying problem by listing his references as footnotes to the pages on which they appear.

Numerous illustrations of high quality are spread with a lavish hand throughout. Dr. Thorek's well known artistic abilities have endowed him with that peculiar talent of selection in which every illustration serves its purpose and wherever possible speaks a volume of words. To busy practitioners and general surgeons these volumes should be of great service.

Zur Erblichkeitsfrage des endemischen Kretinismus: Untersuchungen an 204 Kretinen und deren Blutsverwandten. Teil 1. Von J. Eugster. Separatabdruck aus: Archiv der Julius Klaus-Stiftung für Vererbungsforschung, Sozialanthropologie und Rassenhygiene, Band XIII, Heft 3, 1938. Paper. Pp. 383-494, with 110 illustrations. Zurich: Art. Institut Orell Füssli, 1938.

Investigating the incidence of cretinism in regions previously studied for goiter incidence (*Arch. f. Hyg.* **81**, 1913, and **111**, 1933) the author found a marked similarity in geographic distribution. In localities in the cantons of Aargau and Zurich with a high goiter incidence, there were seventeen cretins among 1,677 inhabitants. In the middle range of goiter incidence there were only two cretins among 688 inhabitants, and in the endemic free localities not a single case of cretinism was found among 580 investigated in 1912 and again in 1932. The incidence of cretinic manifestations, in their various degrees of severity, was higher than previously assumed. In certain localities thirty-five cretins per thousand inhabitants were found and the average incidence was 6 per thousand for the total region previously investigated for goiter. Particularly interesting were the families studied in which cretinic characteristics marked an entire group of sisters and brothers. A greater frequency among near relatives of the parents of cretins was not demonstrated in the material studied. The frequency in near relatives was not greater than the average for the total population. Among the children of healthy parents, the percentage of children affected was just as great as when one of the parents was cretinoid. In all cases in which the father was cretinoid and the mother was healthy there was no case of cretinoid children. In five families observed in which both parents were cretinoid the relatively high number of healthy children was notable. The investigation of brother and sister groups revealed a greater occurrence in the late births. Among people coming into the districts studied, cretinism may appear in the second, occasionally in the first, generation of children, but never was a case of acquired cretinism observed in the immigrants themselves. The investigation of twins indicated a nonhereditary anlage. There were nine identical and fifteen dissimilar pairs in the twenty-four pairs of twins. The concordance-discordance relationship of the first may be expressed 6 : 3 and of the latter 10 : 5. Definitely the dissociation of symptoms was revealed; that is, the manifestations of disturbance of growth does not parallel the other main symptoms such as defective hearing and lowered intelligence.

Physical Diagnosis. By Richard C. Cabot, M.D., and F. Dennette Adams, M.D., Instructor in Medicine in the Harvard Medical School, Courses for Graduates, Boston. Twelfth edition. Cloth. Price, $5. Pp. 846, with 391 illustrations. Baltimore: William Wood & Company, 1938.

This is an expanded revision of the previous editions embodying much that is new. The views of the co-author as well as those of the teaching staff of the Massachusetts General Hospital have been incorporated to give a much more complete volume on physical diagnosis. The arrangement with the increased emphasis on the relationship to symptomatology and clinical entities adds to the readability and the appeal to the medical student. The many new illustrations are well chosen and aptly supplement the text.

The Handicap of Deafness. By Irene R. Ewing, M.Sc., and Alex. W. G. Ewing, M.A., Ph.D. Cloth. Price, $5.40. Pp. 327, with 85 illustrations. New York, Toronto & London: Longmans, Green & Co., 1938.

This book accomplished a useful purpose. It tells in clear, succinct language of the handicaps and social disabilities of deafness and tersely may be summarized as presenting ways to alleviate incurable deafness. The deaf and the deafened, divided into class groups, are each accorded separate treatment in the text. The young of either sex who are becoming deaf, the middle aged with partial deafness, the child with defective hearing, and those born deaf each presents a different problem. The authors first present the problems with which each group is confronted and then they fully discuss in detail the steps to be undertaken to promote alleviation of the situation for each group. The book contains a great amount of first-hand study by the authors together with correlated scientific data not generally found collected in one volume. The book therefore is particularly valuable to educators and to students of the problems inherent in the education and the social and personal adjustment of the deafened in their everyday environment. The contents will also interest the medical profession. Otologists will be amply repaid for reading about the influence of deafness on speech in the young and its effect on the adult who becomes deaf; chapters on the assessment of deafness, the distortions and loudness factors inherent in defective hearing, and the methods which the authors recommend to test intelligibility of speech. This is comprehensible when one realizes that the elements which go into the pathogenic lesions which result in deafness and those which promote the physiologic act concerned in listening are not too clearly comprehended by otologists. It would take us too far afield to open a discussion of the many interesting and provocative chapters which the authors of this book present. Perforce this must be omitted here, but the book is recommended for study by all interested in deafened persons. The stress on the educational phases to alleviate deafness is clearly emphasized and deserves special mention. The reader of this volume will be made to realize what a many sided problem the persons handicapped by deafness present, and a path is outlined to alleviate the conditions which are the barriers to social, economic, medical and personal adjustment to an

otherwise incurable situation. Physicians generally, otologists particularly, and the social workers among the deafened will find in the book a valuable guide and source material. The book is written in such a way that it is commended to the League for the Hard of Hearing in this country for reading. It will help deafened persons to understand themselves and perhaps to help themselves.

Revisão da familia Trichostrongylidae Leiper, 1912. Por Lauro Travassos. Monographias do Instituto Oswaldo Cruz, No. 1. Paper. Pp. 512, with 295 illustrations. Rio de Janeiro: Typ. do Instituto Oswaldo Cruz, 1937.

This is a systematic monograph of an important family of nematode worms parasitic in vertebrates. It includes thirteen subfamilies, ninety-three genera and 335 species. They are known from all classes of vertebrates but only in one fish, a few amphibians, fewer reptiles and more birds and they seem to have reached their greatest evolution in mammals, in which they range from monotremes to man. Two species, Haemonchus contortus and Mecistocirrus digitatus, occur in man, the former being found also in the bear, pig, several ground squirrels, camel, axis deer, elk, caribou, several American deer, buffalo, many antelopes, sheep, goats, bison and cattle. The latter species has fewer hosts, being known only from the pig, cattle and Indian buffalo. The organs usually infested are the stomach and intestine. This monograph gives the bibliography, synonymy, measurements, morphology, organs infested, geographic distribution, and a diagnostic figure of each species but unfortunately no figures of ova. It will be of value to veterinary science and will help in the identification of the trichostrongylid worms which man may occasionally pick up from his domesticated animals. It is interesting to note that man has not inherited any of eight species of these worms found in other primates.

La anemia de la enfermedad de Carrion (verruga peruana). Por el Dr. Alberto Hurtado, profesor de fisiopatología y director del Laboratorio de investigaciones, y Srs. Julio Pons M. y Cesar Merino M., ayudantes del Laboratorio de investigaciones. Laboratorio de investigaciones, Departmento de fisiopatologia, Facultad de ciencias medicas, Lima. Paper. Pp. 206, with 53 illustrations. Lima, Peru: Libreria e Imprenta Gil, S. A., 1938.

This is a report of investigations on the morphology of the blood and other characteristics of the anemia resulting from Carrion's disease (verruga peruana). Forty-six cases of this disease were studied and the results compared with similar observations on a hundred normal subjects. The authors conclude that the anemia which is frequent and severe in this disease is characterized by (1) its great rapidity of development, (2) macrocytosis, (3) anisocytosis and (4) hypochromemia. The degree of the last three of these characteristics was directly proportional to the severity of the anemia. The erythrocytes increased in thickness more than in diameter, tending to become spherical. Determinations made on total blood volume revealed an intense reduction in total circulating erythrocytes and hemoglobin with a compensatory increase in quantity of plasma, an increase which exceeded the erythrocyte loss in certain periods of the anemia, thereby effecting a cellular dilution. This would introduce a moderate error in the estimation of the anemia when the latter is determined solely by the numbers of cells per unit volume of blood. Hyperbilirubinemia was observed in the majority of cases. It was greatest during the periods of greatest anemia and, in fatal cases, during the last few days of life. There were indications that the jaundice was related to the greater erythrocytic destruction and to a diminution in the excretory power of the hepatic cells. Frequently an increased fragility of the red cells accompanied the period of intense anemia. Parasitism of the erythrocytes by Bartonella bacilliformis was rather constant during the anemia. The majority of cases showed signs of intense erythropoietic activity which was proportional to the degree of the anemia. This was responsible for the macrocytosis, hypocromemia, reticulosis and the presence of normoblasts in the blood.

The leukocytes occurred in normal numbers in uncomplicated cases, with an occasional leukopenia. During the period of greater anemia a moderate "regenerative reaction" and a more intense "degenerative reaction" occurred. When "cellular crises" occurred they came at times when the leukocytes were between 2.4 and 3.2 millions per cubic millimeter and were apparently not related to the erythrocytic regeneration. This crisis corresponded, in general, to the time at which the parasitism and the signs of abnormal cellular destruction disappeared.

Achlorhydria and hypochlorhydria were evident in the majority of cases. Liver therapy did not arrest the anemia but apparently did accentuate the processes of regeneration.

The appearance of macroscopic eruptive lesions did not correspond to a definite level of cells per cubic millimeter but in three cases was preceded by the "cellular crisis." The morphologic similarities between Carrion's anemia and the experimental bartonelloses in animals (B. canis and B. muris) are discussed. The authors believe that the pathologic mechanism in Carrion's anemia consists fundamentally of an accentuation of the processes of cellular destruction.

They conclude that their results suggest the need for including liver extracts and iron in the treatment.

Arbeit und Gesundheit: Sozialmedizinische Schriftenreihe aus dem Gebiete des Reichsarbeitsministeriums. Herausgegeben von Professor Dr. Martineck, Ministerialdirigent im Reichsarbeitsministerium. Heft 33: Tabes dorsalis: Klinische erb- und konstitutionspathologische sowie sozialmedizinische Untersuchungen. Unter Verwertung der Erfahrungen aus der Kriegsbeschädigten-Versorgung. Von Prof. Dr. F. Curtius, Dr. med. H. Schlotter und Dr. phil. Edm. Scholz. Paper. Price, 14 marks. Pp. 275, with 80 illustrations. Leipzig: Georg Thieme, 1938.

This study of 101 tabetic patients is of little value to the clinician. Of the 262 pages of text, 160 are devoted to a survey of constitutional, individual and familial predisposing factors and thirty-eight to the effect of war service on the development of tabes. Only thirty-nine pages are given to clinical considerations and no space is allotted to treatment. On the whole, the monograph might more profitably have been presented as a series of short papers in the periodical literature. The conclusions, based on an elaborate presentation of individual case histories, tables and charts, are that the various factors of human constitution studied by the authors are not concerned in the pathogenesis of tabes, except bodily habitus, which is frequently of the asthenic type (though it is not made clear whether patients develop tabes because they are asthenic or become asthenic after they develop tabes) and "neuropathic constitution." By the latter is meant that the families of tabetic patients include a higher proportion of psychiatrically unstable persons than do those of normal people. Many constitutional factors are considered in great detail and, though the results are largely negative, the work will be of value to students of this phase of medicine. With characteristic German disregard of science elsewhere than in Germany, the bibliography of 160 references includes 147 to German authors, eleven to French, one to an Italian and one to an English speaking author, the last to a twenty-four year old article by C. J. White (A Statistical Study of Syphilis: The Relation of Its Symptoms to Subsequent Tabes Dorsalis and General Paralysis, THE JOURNAL, Aug. 8, 1914, p. 459) and even this lone English article is incorrectly cited.

The Sex Criminal. By Bertram Pollens. Foreword by Richard A. McGee, Warden, Rikers Island Penitentiary, New York City. Cloth. Price, $2. Pp. 211, with 5 illustrations. New York: Macaulay Company, 1938.

In his preface the author makes acknowledgment to great numbers of officials in New York who have aided him with advice and opportunities in the development of this book. The author is senior psychologist to the penitentiary of the city of New York and as such has had administrative charge of the sex clinic in association with psychiatrists and technicians. The book takes up the matter from the point of view, therefore, of the physician and of the psychologist, as well as from that of the lawyer. Each year about 1,500 so-called sex criminals are arrested in New York City. Sex crimes, however, are more frequent, the number apparently decreasing from about 7,000 in 1923 to 3,700 in 1935. The author approaches the subject from the freudian point of view, one of his most extensive chapters being that entitled "Infantile Sexuality." It seems doubtful, however, that many freudians would recognize this author as competent for such a performance. Later chapters are concerned with homosexuality and sexual deviations. Fortunately the conclusions of the author are much more sound

than the discussions which gave them birth. He recommends psychiatric studies of the sex criminal and of the subject of sex in childhood, sympathy by parents with the problems of the child and sex education in the home.

A Historical Chronology of Tuberculosis. By Richard M. Burke, M.D., State Veterans Hospital, Sulphur, Oklahoma. Cloth, Price, $1.50. Pp. 84. Springfield, Illinois, & Baltimore: Charles C. Thomas, 1938.

Our knowledge of tuberculosis is as old as our knowledge of medicine itself. Evidences of tuberculosis of the spine have been found in men of 5000 B. C. The poet Homer refers to the disease and Hippocrates provided the first detailed description of the nature of tuberculosis. Year by year since that time medicine has added important foundation stones to our knowledge. The following significant dates in the history of tuberculosis have proved most important:

460-370 B. C.: Hippocrates provides an accurate clinical description of phthisis.

1679: Sylvius sees tubercles (nodules in the lung) as the actual precursors of phthisis.

1810: Bayle teaches that tubercles are a specific local formation causing a specific disease.

1815: Laënnec establishes the unity of the tubercle. He discovers the stethoscope and founds modern physical diagnosis.

1859: Brehmer begins the modern institutional treatment of tuberculosis.

1865: Villemin demonstrates experimentally that tuberculosis is a specific infection due to an inoculable agent.

1882: Koch discovers the cause of tuberculosis, the tubercle bacillus.

1890: Koch introduces tuberculin, a glycerin extract of tubercle bacilli.

1894: Forlanini pioneers the use of artificial pneumothorax in the treatment of pulmonary tuberculosis.

1895: Roentgen discovers x-rays.

1907: Pirquet introduces a cutaneous test for tuberculosis.

Einführung in die chemische Physiologie. Von Dr. E. Lehnartz, a. o. Professor an der Universität Göttingen. Second edition. Paper. Price, 18 marks. Pp. 434, with 70 illustrations. Berlin: Julius Springer, 1938.

This book presents a more thorough treatment of the organic chemistry of carbohydrates, lipids and proteins than appears in any of the recent textbooks of biochemistry in English. It may be useful to some readers for that reason. Approximately 100 pages are devoted to what might be considered pure organic chemistry. The next fifty pages are devoted to physical-chemical questions, the treatment of which introduces more biologic material; however, it would still seem possible to devote more attention to specific physiologic questions. Vitamins, hormones and enzymes occupy the next section, of 120 pages. The treatment of these questions is thoroughly down to date and includes an adequate amount of physiologic material. The rest of the book, 140 pages, is devoted to metabolism. This section of the book is closely packed with important information but is somewhat too short to accomplish a satisfactory treatment of the subjects in question. The whole problem of fat metabolism, for example, occupies only six pages. The treatment of what might be called clinical chemistry is almost completely lacking.

Acidosis y alcalosis en la clínica. Por B. Varela Fuentes, profesor de la Facultad de medicina de Montevideo. Prólogo del Profesor Gregorio Marañón. Paper. Pp. 445. Buenos Aires: Espasa-Calpe Argentina, S. A., 1937.

In this book the author studies the acid-base equilibrium, both normal and pathologic. The book is divided into three parts, which deal respectively with the normal acid-base equilibrium from biochemical and physiologic angles, the various types of acidosis and alkalosis and their pathogenesis, and the treatment of the various types of acidosis and alkalosis which are observed by practitioners of internal medicine, clinical surgery, pediatrics, urology, gynecology and several other medical specialties. Special reference is made to the treatment of grave conditions caused by the rupture of the acid-base equilibrium which have to be rapidly controlled by introduction, in the blood, of a radical the amount of which is insufficient in the blood plasma, such as, for instance, rechloridation in alkalosis from hypochloremia and administration of injections of sodium chloride solutions in the course of Addison's disease and of calcium in hypocalcemia in tetany. The subject, on the whole, is dealt with in a precise, clear, didactic and interesting style, covering the various fields of theory and clinical practice. The literature is critically reviewed and there is a selected bibliography. The book contains graphic illustrations and tables of the most important points related to the acid-base equilibrium, both normal and pathologic. It ends with a subject index. The book is of value for physicians in the various medical specialties, especially Spanish-speaking physicians.

A Manual of Surgery for Nurses. By Charles Wells, M.B., F.R.C.S., Honorary Surgeon with Charge of Out-Patients, Royal Southern Unit of the Royal Liverpool United Hospital, Liverpool. Cloth. Price, $4. Pp. 409, with 160 illustrations. Baltimore: William Wood & Company, 1938.

This is a small, nonexhaustive book on surgery, intended primarily to introduce the student nurse to the science and art of surgery as well as to prepare her for the required state examinations. The book, though brief, is unusually complete. It covers all of general surgery including gynecology, orthopedics and the conditions of the eye, ear, nose and throat. It does not, however, deal with any of the practical nursing procedures. Written in simple clear style and illustrated by line drawings to clarify the text, it easily fulfils the purpose for which it was intended.

Symptoms of Visceral Disease: A Study of the Vegetative Nervous System in Its Relationship to Clinical Medicine. By Francis Marion Pottenger, A.M., M.D., LL.D., Medical Director, Pottenger Sanatorium and Clinic for Diseases of the Chest, Monrovia, California. Fifth edition. Cloth. Price, $5. Pp. 442, with 97 illustrations. St. Louis: C. V. Mosby Company, 1938.

The latest edition of this well known book is not greatly altered from the earlier printings. Attention is called to the close interrelations between the vegetative nervous system, the glands of internal secretion and the electrolyte balance. One may not agree either with the argument or with the conclusions, but one must admit that the book is always interesting and stimulating.

Bureau of Legal Medicine and Legislation

MEDICOLEGAL ABSTRACTS

Charitable Hospitals: Liability to Pay Patient for Negligence of Employee.—An appendectomy was performed at the defendant hospital on the plaintiff's minor son, a pay patient. Subsequent to the operation, a nurse employee of the hospital injected one-fourth grain of morphine, instead of the one-fourth grain of codeine ordered by the attending physician. The patient died soon thereafter from the effects of the injection. The plaintiff then sued the hospital. The defendant hospital demurred to the complaint, contending that it was incumbent on the plaintiff to plead that the hospital was *not* a charitable institution, which he had not done. The plaintiff appealed from the judgment of the trial court sustaining the demurrer, and the Supreme Court of Utah reversed the judgment and remanded the cause to the trial court with directions to overrule the demurrer. *Sessions* v. *Thomas Dee Memorial Hospital Ass'n*, 89 Utah 222, 51 P. (2d) 229 (abstr. J. A. M. A. **107**:453 [Aug. 8] 1936). After the demurrer was overruled by the trial court, the plaintiff amended his complaint so as to allege in effect that, even though the defendant hospital was a charitable institution so far as its organization, aims and purposes were concerned, nevertheless it was liable for the negligence of its employee because the person injured as a result of the negligence was a pay patient. The defendant hospital then demurred to the amended complaint and when the trial court sustained that demurrer and entered judgment for the defendant the plaintiff again appealed to the Supreme Court of Utah.

The Supreme Court, citing with approval *Henderson* v. *Twin Falls County*, 56 Idaho 124, 50 P. (2d) 597 (abstr. J. A. M. A. **106**:1228 [Apr. 4] 1936) held in effect that where a hospital has entered into a contract to render service to a patient for compensation, even though the general purposes of the hospital are charitable, it is liable to that patient for injury caused by

the negligence of its nurse employee. Accordingly, the judgment of the trial court was reversed and the cause again remanded with directions to overrule the demurrer.

In a dissenting opinion the chief justice and another justice were of the opinion that a charitable hospital is not liable for the negligence of its servants, whether the person injured be a charity patient or a pay patient, when it uses reasonable care in the selection and retention of its employees.—*Sessions v. Thomas D. Dee Memorial Hospital Ass'n (Utah), 78 P. (2d) 645.*

Compensation of Physicians: Liability of County for Nonemergency Medical Services to Indigent.—On June 4, 1935, a woman resident of Noble County, Okla., was severely burned. On June 7, after self treatment proved unsuccessful, a physician, one of the six plaintiffs who as copartners operated a clinic, was called. As the patient was an "indigent person" within the meaning of the statutory definition of that term, the physician attempted to get into touch with a member of the board of county commissioners, who by statute were designated as overseers of the poor, to obtain authorization for her admission to a hospital at Perry as a county patient. He was unsuccessful. Failing to obtain such authorization, he nevertheless sent the patient to that hospital for admission as a county patient, but admission was refused. At the direction of the plaintiffs, she then was taken for treatment to the plaintiffs' own hospital at Ponca City. Two days before she left their hospital, the plaintiffs filed a claim with the county clerk for their fee for services rendered. The board of county commissioners, however, refused to pay, because they had not authorized treatment, and the plaintiffs brought suit against the board. From a judgment in favor of the plaintiffs, the board appealed to the Supreme Court of Oklahoma.

To support their claim, the plaintiffs cited *Board of Commissioners of Garfield County* v. *Enid Springs Sanitarium & Hospital,* 116 Okla. 249, 244 P. 426, in which the Supreme Court of Oklahoma said:

> The general rule is that in cases of emergency attendance of a pauper a physician may hold the county liable, although he acted without the request or the consent of the persons designated by statute as overseers of the poor, where such poor person requires the immediate attention of a physician, who renders services to relieve the necessity; and where it appears that the board of county commissioners was not in session at the time and that notice could not have been given to the board of county commissioners before rendering necessary medical and surgical services, the physician and surgeon may recover reasonable compensation from the county within the limit of the fund provided by law for such purpose.

But, said the Supreme Court, in the present case it has not been shown that an emergency existed which would not permit delay. The evidence showed that when the patient was admitted to plaintiffs' hospital her condition was critical but was not one of imminent danger to life. The evidence showed further that the plaintiffs did not have and did not attempt to obtain authorization for themselves to render medical and hospital services. The court concluded, therefore, that the county was not liable and so it reversed the judgment of the trial court and remanded the case with direction to enter a judgment accordingly.—*Board of Com'rs of Noble County v. Niemann et al. (Okla.), 78 P. (2d) 672.*

Optometry Practice Acts: Corporation May Not Practice Optometry Through Licensed Optometrists.—The plaintiffs, individually as licensed optometrists, and as trustees of the Philadelphia County Optometric Society, and the Pennsylvania Optometric Association, instituted this suit to enjoin the defendant corporation from practicing optometry. The trial court entered a decree enjoining the defendant from holding itself out as an optometrist, by advertisement, sign or otherwise, and from practicing optometry. The plaintiffs, not being satisfied with the decree as entered, appealed to the Supreme Court of Pennsylvania, urging that the decree be enlarged specifically to prohibit the defendant from employing licensed optometrists to examine the eyes of its customers.

The defendant corporation leased a portion of its store to a partnership which operated therein an optical department for the examination of eyes and the fitting and supplying of glasses. This leased portion of the store was known and operated as the "Optical Goods Department." The lease was of indefinite duration but might be canceled on thirty days' notice. The rental was $12,500 a year, plus one third of the lessee's gross annual business in excess of $50,000. The lease provided that the name of "Gimbels" should alone be used in advertising the department and obligated the lessees to expend a certain percentage of their annual sales, at least $3,000, for advertising under the name and direction of the defendant. The store sign outside the leased department read "Gimbel Brothers' Optical Department." Prior to the commencement of the present suit, advertisements appeared under the name "Gimbel's Modern Optical Shop" with no mention of the names of the registered optometrists in attendance. Thereafter, the advertisements did name the optometrist actually in charge of the department. The registered optometrists in attendance and all other employees of the department were hired and paid by the partnership but were under the supervision and control of the corporation, which had a right to dismiss them. The registered optometrists did not conduct a practice of their own and were required to charge for all examinations and fittings of glasses in the defendant corporation's name and the corporation received all fees therefor. The charges for services rendered by the optometrists were fixed by the partnership but were required to be as low as in any other department store in the city, so as successfully to compete. Bills rendered for the examination of eyes and their fitting with glasses were in the defendant's name and on its billheads.

The plaintiffs conceded that the defendant corporation had a right to lease space in its store to a person to carry on his professional calling but contended that, when the leasing was accompanied with such control as was here shown, the lessee becomes the agent of the defendant, and since it cannot obtain a license to practice optometry it may not engage in such practice through agents. With this contention the Supreme Court agreed and in doing so quoted from the decision of the Supreme Judicial Court of Massachusetts in *McMurdo* v. *Getter,* 10 N. E. (2d) 139, as follows:

> The defendants contend that they are not practicing optometry illegally, although they are not registered optometrists and yet reap all the financial reward of a practice conducted by their servant who is a physician and as such entitled to practice optometry without registration . . . A different rule has been applied to the learned professions. These are characterized by the need of unusual learning, the existence of confidential relations, the adherence to a standard of ethics higher than that of the market place, and in a profession like that of medicine by intimate and delicate personal ministration. . . . Professional men may be held to a higher ethical code, for example by the restriction of advertising, than men engaged in ordinary business. . . . The rule is generally recognized that a licensed practitioner of a profession may not lawfully practice his profession among the public as the servant of an unlicensed person or a corporation; and that, if he does so, the unlicensed person or corporation employing him is guilty of practicing that profession without a license. A corporation as such cannot possess the personal qualities required of a practitioner of a profession. Its servants, though professionally trained and duly licensed to practice, owe their primary allegiance and obedience to their employer rather than to the clients or patients of their employer. The rule stated recognizes the necessity of immediate and unbroken relationship between a professional man and those who engage his services.

Expressing itself as fully in accord with the views thus voiced by the Massachusetts court, the Supreme Court of Pennsylvania in the present case concluded that the decree of the trial court should be enlarged to prohibit the defendant from employing registered optometrists to examine the eyes of its customers. It ordered the decree to be modified accordingly.—*Neill et al. v. Gimbel Bros., Inc. (Pa.), 199 A. 178.*

Society Proceedings

COMING MEETINGS

American Orthopsychiatric Association, New York, Feb. 23-25. Dr. Norvelle C. La Mar, 149 East 73d St., New York, Secretary.

American Society of Anesthetists, New York, Feb. 10. Dr. Paul M. Wood, 131 Riverside Drive, New York, Secretary.

Annual Congress on Medical Education and Licensure, Chicago, Feb. 13-14. Dr. W. D. Cutter, 535 North Dearborn St., Chicago, Secretary.

Mid-South Post-Graduate Assembly, Memphis, Feb. 14-17. Dr. A. F. Cooper, Goodwyn Institute Bldg., Memphis, Tenn., Secretary.

Western Section, American Laryngological, Rhinological and Otological Society, Spokane, Wash., Jan. 29. Dr. Frederic G. Sprowl, Medical Arts Bldg., Spokane, Wash., Chairman.

Current Medical Literature

AMERICAN

The Association library lends periodicals to members of the Association and to individual subscribers in continental United States and Canada for a period of three days. Three journals may be borrowed at a time. Periodicals are available from 1928 to date. Requests for issues of earlier date cannot be filled. Requests should be accompanied by stamps to cover postage (6 cents if one and 18 cents if three periodicals are requested). Periodicals published by the American Medical Association are not available for lending but may be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (*) are abstracted below.

Alabama State Medical Assn. Journal, Montgomery

8: 197-232 (Dec.) 1938

Chronic Nephritis in Pregnancy. W. B. Anderson, Nashville, Tenn.—p. 197.

Cyclopropane Anesthesia. H. Linder, Birmingham.—p. 199.

Burns: Fundamentals of Successful Treatment. F. W. Pickell, Brewton.—p. 203.

Prenatal Syphilis and Its Treatment. A. E. Thomas, Montgomery.—p. 208.

Four Year Medical School: Its Importance to the State. E. V. Caldwell, Huntsville.—p. 210.

American Journal of Clinical Pathology, Baltimore

8: 597-696 (Nov.) 1938

Desirability of State Licensure (or National Approval) for Laboratories Performing Venereal Disease Tests (Incorporating More Than 300 Replies to a Questionnaire on This Subject). F. H. Lamb, Davenport, Iowa.—p. 597.

Correlation Studies of Basophilic Aggregation and Reticulocytes in Various Clinical Conditions. M. D. Pearlman and L. R. Limarzi, Chicago.—p. 608.

The Ebb and Flow of Theories About Pernicious Anemia. W. Dock, San Francisco.—p. 620.

Some Etiologic Factors and Lesions in Cerebral Anoxia. F. W. Hartman, Detroit.—p. 629.

American Journal of Diseases of Children, Chicago

56: 1189-1440 (Dec.) 1938

Congenital and Familial Hemolytic Disease in Children. R. Debré, M. Lamy, G. Sée and G. Schrameck, Paris, France.—p. 1189.

Altered Lipid Metabolism in Acute Infections of Infants and of Older Children. A. V. Stoesser, Minneapolis.—p. 1215.

*Giardiasis in Children. P. Véghelyi, Budapest, Hungary.—p. 1231.

*Treatment of Gonococcic Infections in Children with Sulfanilamide. Eleanor L. Adler, New York.—p. 1242.

Evidences of Disturbed Prenatal and Neonatal Growth in Bones of Infants Aged One Month: II. Contributing Factors. L. W. Sontag and Louise Maxwell Harris, Yellow Springs, Ohio.—p. 1248.

Sulfanilamide Eruption: Study of Patients with Morbilliform Rash and of Their Subsequent Reactions. E. R. Schlesinger and W. L. Mitchell Jr., New York.—p. 1256.

Action of Ergosterol and of Purified Vitamin D on Poliomyelitis Virus. J. A. Toomey and W. S. Takacs, Cleveland.—p. 1274.

Hormone Reactions of Pregnancy. L. Dobszay, Gyula, Hungary.—p. 1280.

*Active Immunization Against Whooping Cough with Various Specific Vaccines. M. Siegel, New York.—p. 1294.

Effects of Serum Transfer in Patients with Rheumatic Fever. M. Friedman, R. Klein and P. Rosenblum, Chicago.—p. 1304.

Giardiasis in Children.—Véghelyi states that of 1,391 children between the ages of 2 and 17 years examined for infestation with Giardia lamblia 155 proved to be positive. Of these only 144 could be precisely examined. In addition to tests for tuberculosis and syphilis, careful roentgen and electrocardiographic examinations and detailed laboratory tests were made in the majority of the cases in order to eliminate the possibility that causes other than Giardia were responsible for the condition. Thirty-two children gave evidence of various other diseases and twenty gave a positive reaction to tuberculin. Ninety-two children were left. All the symptoms found were compared with those of healthy children of the same age. Some infested children were symptomless and some had symptoms of no significance. But gastrointestinal complaints, anemia and inadequate development were present in a high percentage of cases. Aside from the common infectious diseases without complications, the histories showed that six children had dysentery and two typhoid from two to five years before the present examinations. Anorexia, headache, dizziness and abdominal pain were frequent. From one third to more than one half of the children had these complaints. Pain in the abdomen together with loss of weight and anemia was often observed by the parents of the children. Intense, acute pain over the cecal region occurred independently of meals and appeared in cramplike attacks. Mucus, pus or blood had been seen in the feces of one fourth of the children who were infested. Two thirds complained of irregular bowel movements. Similar conditions cannot be found in healthy children. Fifty-one of the infested children were asthenic while only thirteen were of athletic constitution. No pathologic condition could be revealed by the physical examination of the lungs, hearts and kidneys of the ninety-two infested subjects. The most striking difference between the infested and healthy subjects was shown by the comparison of weights. Of the ninety-two infested children only thirteen attained or surpassed the average weight, while seventy-nine were below it. The development of their height was but slightly impeded. The hepatic disorders often found in adults were not present in these patients. All the symptoms may be explained by the impeded resorption capacity of the intestinal tract. The symptoms disappeared in twenty-nine of thirty-two children after treatment with acetarsone. Regeneration of the blood of anemic children and rapid development of those who were retarded in weight quickly started after successful treatment. Healing was not a consequence of the tonic action of arsenic. In the three cases in which treatment was not successful the symptoms were further aggravated.

Sulfanilamide for Gonorrhea in Children.—Adler used sulfanilamide in the treatment of twenty-two cases of gonorrheal vaginitis, five of gonorrheal urethritis in boys and nine cases of gonorrheal conjunctivitis. The dose of sulfanilamide used was calculated on the recommendation of Long and Bliss, 1 Gm. to 20 pounds (9 Kg.) of body weight being given daily in three or four doses at equal intervals throughout the twenty-four hours. Eight of the nine patients with conjunctivitis responded promptly to sulfanilamide therapy; irrigations were required only at intervals of two or three hours after one or two doses of the drug and were discontinued after a few days of treatment. The results add further evidence to the report of Willis that, in cases of gonorrheal conjunctivitis, sulfanilamide gives a more rapid cure than any other method of treatment. In four of the five cases of urethritis there was a prompt response to treatment. Thirteen of the twenty-two children with vaginitis showed a prompt and definite response to sulfanilamide therapy, with cessation of discharge and with consistently negative smears after an average of two days of treatment. Three failed to respond to an adequate trial with sulfanilamide but the infection cleared up subsequently by treatment with estrogen, only to recur within a short time and respond satisfactorily within forty-eight hours to a second trial of sulfanilamide. An inadequate dose of the drug seems to account for three failures. In one other case in which there was no response the concentration of the drug in the blood, from 12.6 to 25 mg. per hundred cubic centimeters, suggests that dosage and the concentration in the blood are not the only factors which determine success or failure.

Active Immunization Against Whooping Cough.—In order to determine the prophylactic value of various whooping cough vaccines, Siegel followed up 1,270 vaccinated and 1,016 control children for from fourteen to twenty-three months. There were eight groups of vaccinated children under consideration. Familial exposure occurred in 1 per cent of all cases and extrafamilial exposure in 4.9 per cent. There were forty-six cases of characteristic whooping cough among the vaccinated children, as compared with forty-three among the controls. The incidence of characteristic whooping cough ranged from 0 to 6.72 per cent among the various groups of vaccinated children. It was lower among those inoculated with 80 billion bacilli than among those inoculated with smaller doses. There were no occurrences of characteristic whooping cough in two groups, 294 children, who were inoculated subcutaneously with 80 billion bacilli of Sauer's vaccine or the vaccine of the New York Department of Health. Familial exposure occurred in only one case; no symptoms developed in this instance. Extrafamilial exposure was suspected in ten cases, in three of which a cough unaccompanied by a whoop developed. Doses of 50 billion bacilli or less seemed to have little, if any, prophylactic value; this also seemed to be true of doses of 80 billion bacilli of a vaccine prepared from an old stock strain.

American J. Obstetrics and Gynecology, St. Louis

36: 909-1098 (Dec.) 1938. Partial Index

*Diagnosis of Occurrence of Toxemia of Pregnancy by Examination of the Unknown Placenta: Study of 100 Cases. R. A. Bartholomew and E. D. Colvin, Atlanta, Ga.—p. 909.
Studies on Pelvic Arrests. W. E. Caldwell, H. C. Moloy and D. A. D'Esopo, New York.—p. 928.
The Cesarean Scar: Experimental Study. O. H. Schwarz, R. Paddock and A. R. Bortnick, St. Louis.—p. 962.
Problems in Etiology and Prevention of Stillbirths. T. L. Montgomery, Philadelphia.—p. 975.
Technic and Results of Routine Fetal Electrocardiography During Pregnancy. E. O. Strassmann and R. D. Mussey, Rochester, Minn.—p. 986.
*Relation of Basal Body Temperature to Fertility and Sterility in Women. T. T. Zuck, Cleveland.—p. 998.
Excretion of Hormones in a Case of Habitual Abortion. A. Palmer, San Francisco.—p. 1005.
Hysterectomy: A Ten and a Half Years Study. A. Mathieu, Jean D. Kindschi, G. Nelson and G. McShatko, Portland, Ore.—p. 1028.
Comparative Study of Classic and Cervical Cesarean Sections at the Brooklyn Hospital in a Series of 164 Cases. J. Casagrande, Brooklyn.—p. 1033.
*Some Observations on Infectious Agents Causing Leukorrhea During the Childbearing Period. H. A. Poindexter, Washington, D. C.—p. 1052.
Primary Cancer of the Vagina. F. V. Emmert, St. Louis.—p. 1058.
Sarcoma of the Uterus: Report of Three Cases. W. C. Danforth, Evanston, Ill.—p. 1062.
Puerperal Infection from Vincent's Organisms. F. W. Peyton, Lafayette, Ind.—p. 1068.

Toxemia of Pregnancy and the Placenta.—According to Bartholomew and Colvin, placental infarcts of the more acute types are definitely associated with toxemia of pregnancy. The hypercholesteremia of pregnancy is the basis for vascular changes in the placental arteries which predispose to infarction. Hypothyroidism and a diet rich in cholesterol-containing foods are important factors in excessive hypercholesteremia. The trauma of fetal movements on the placental arteries in the latter part of pregnancy is not only a predisposing cause of localized cholesterol change in the vessels but also an exciting cause of thrombosis or rupture at the site of such change, with resulting infarction. The high content of arginine in placental tissue is the probable explanation of the specific eclamptogenic character of placental autolysate, through the formation of guanidine. The known pathologic effects of guanidine, peptone and histamine apparently explain the clinical and pathologic manifestations of toxemia of pregnancy. The results of a gross examination of 100 placentas from both toxic and normal cases, without knowledge of the clinical history, shows that it is possible to diagnose the occurrence of severe toxemia in 90 per cent of the cases. Conversely, it is possible to predict the type of infarcts that will be found in the placenta, from a knowledge of the clinical history of the pregnancy as to toxemia. With the experience of examining placentas as "unknowns," it has been found possible to establish criteria for an exact classification of placental infarcts and their relation to toxemia.

Body Temperature and Fertility.—Zuck presents data which offer a practical method for the regulation of conception in fertile women. They may also be valuable in the study of women who are reputedly barren. In an effort to obtain further information on human ovulation, he began in 1930 to collect instances of carefully recorded coital exposure which resulted in pregnancy. He enlisted the assistance of young women planning pregnancy and willing to serve in an experiment in which the time of the midperiod could be determined. The women were instructed to keep menstrual records and to observe signs of the midperiod (mittelschmerz). From 1935, morning rectal temperatures also were taken by the women. Rupture of the follicle may actually be felt by the woman after careful observation of her own temperature curve. Sixteen planned pregnancies were successfully started by using midperiod symptoms as indicative of rupture of the ovarian follicle. There were no exposures during the cycle other than those indicated and no subsequent exposures until after pregnancy had been proved. No pregnancy occurred before the eleventh day of the cycle or after the eighteenth day regardless of the length of the cycle. Pregnancy never occurred at any other date of the menstrual cycle despite exposures permitted in previous months during the assumed sterile days. When the daily rectal temperature records are plotted, the resulting curve usually shows that just before menstruation begins there is a slight fall in the temperature, which in most women reaches 98 F. This level is maintained during menstruation. At the end of the period there may be a temporary lowering of the temperature, which then rises to somewhat above 98 F. before falling abruptly, to reach its lowest level at the midperiod, when it may descend to 97 F. or even lower. After this fall the temperature rises to a level usually above 98 F. and remains about stationary until the onset of the next menstrual period. This phase is usually regarded as the lutein phase. Not all menstrual cycles show these clear-cut variations, but in the sixty-seven women studied this variation was characteristic of more than 80 per cent of the menstrual cycles. Records of the last menstrual cycles of twenty women identify ovulation with the approximate date of the midperiod low temperature. No pregnancy occurred before the tenth day or after the twentieth day of the cycle regardless of the length of the cycle. In no woman did pregnancy occur more than three days before or one day beyond the initial rise of temperature from the midperiod low level. After conception the temperature no longer undergoes a cyclic change except in those few women who menstruate or perhaps even ovulate after pregnancy starts. The temperature during pregnancy remains high, as in the last part of the menstrual cycle, and can be used as a sign of pregnancy before other methods of diagnosis are positive. In every woman the morning nausea started at what by computation would be the date of the next ovulation after conception. Hence morning sickness of pregnancy may be related to a change in the ovulation cycle. The human fertile period is shown to vary from woman to woman and from cycle to cycle. It is necessary to study each woman's variation in order to understand her particular variability. As a minute method of determining the time of ovulation the basal rectal temperature is offered, since it is easily determined and bears a close relationship to the time of ovulation. Studies of basal body temperature may be used as a guide or to supplement other data in studying sterility.

Infections Causing Leukorrhea During Childbearing Period.—Poindexter states that of 1,975 patients examined during a venereal disease survey in Tallahatchie County, Miss., in 1937, 399 gave leukorrhea as a chief symptom, 318 of these women were in the childbearing age and eighty-one had passed the menopause. The infectious agents which should be considered in patients who present the symptom of leukorrhea as a primary complaint during the childbearing age are Neisseria gonorrhoeae, Trichomonas vaginalis, Haemophilus ducreyi, Monilia albicans, various streptococci and staphylococci, corynebacteria and Vincent's spirillum. The frequency, about 50 per cent, with which nongonococcic organisms appear in cases of infectious leukorrhea warrants microscopic examination and culture if necessary for Trichomonas vaginalis and Monilia albicans. This is especially important when sulfanilamide is to be used. Sulfanilamide therapy is most effective when used in acute cases of gonorrhea and has no significant effect on leukorrhea due to Trichomonas vaginalis. There is an apparent antagonism between Trichomonas vaginalis, Monilia albicans and Döderlein bacilli against the gonococcus in vivo.

American Journal of Psychiatry, New York

95: 509-768 (Nov.) 1938. Partial Index

Biochemistry of Dementia Praecox: Review. R. A. McFarland and H. Goldstein, New York.—p. 509.
Physiologic Studies in Experimental Insulin and Metrazol Shock: Composite Preliminary Study by Members of the Department of Medical Research, Banting Institute, University of Toronto. G. E. Hall, Toronto.—p. 553.
Early Schizophrenia. D. E. Cameron, Worcester, Mass.—p. 567.
Prognosis in Schizophrenia: Preliminary Report. J. Romano and F. G. Ebaugh, Denver.—p. 583.
Electro-Encephalographic Analyses of Behavior Problem Children. H. H. Jasper, P. Solomon and C. Bradley, East Providence, R. I.—p. 641.
*Psychoses Among College Students. T. Raphael and Mary A. Gordon, Ann Arbor, Mich.—p. 659.
Seeming Aggravation of Drug Delirium After Withdrawal of the Drug, and Its Bearing on Question of the Harmfulness of Withdrawal. M. Levin, Mayview, Pa.—p. 697.
The Problem of the Alcoholic in the Community: Extramural Study and Treatment. R. V. Seliger, Baltimore.—p. 701.
Experiential Aspects of Huntington's Chorea. E. G. Lion and E. Kahn, New Haven, Conn.—p. 717.

Psychoses Among College Students.—Raphael and Gordon discuss the experience of the psychiatric unit of the student health service established in 1930 at the University of Michigan. The total enrolment during the seven years in question was

85,543, with a yearly average of 12,220. The number of students coming to the attention of the mental hygiene service was 4,779, an average of 7.67 per cent. In 114, psychoses of various types were observed. Of the 114 individuals developing psychoses, sixty-four were men and fifty women. The average age range for schizophrenia was from 17 to 40, for the manic-depressive group from 17 to 43 and for the paranoid conditions from 19 to 56 years. Psychoses among the student population, while not frequent, do represent a definite contingency which the college must appreciate and be prepared to meet. Properly approached and with adequate facilities, the problem can be satisfactorily dealt with, often with an excellent long-term result to the individual and academic result. In the college situation an almost unique opportunity is afforded for the early detection, study and treatment of psychotic conditions, actually in their incipience. In this naturally there should be much of benefit to the individual and, respecting the schizophrenic reaction type particularly, to the science of psychiatry itself through the realization of the mental hygiene principle. A psychiatric unit of the student health service of a college or university may further the institution's fundamental objective, and the psychiatrist may render a vital and far reaching service.

Am. J. Roentgenol. & Rad. Therapy, Springfield, Ill.

40: 645-804 (Nov.) 1938

Chromophobe Adenomas of the Pituitary: Pathologic Features and Response to Irradiation Based on Study of Eighty-One Verified Cases. M. T. Schnitker, Toledo, Ohio; E. C. Cutler, Boston; O. T. Bailey, Cambridge, Mass., and W. W. Vaughan, Durham, N. C.—p. 645.
The Place of Irradiation in Acromegaly: Report of Fifty-Three Cases. W. W. Vaughan, Durham, N. C.—p. 660.
Displacement and Recession of the Choroid Plexus. R. M. Lowman and T. J. C. von Storch, Boston.—p. 669.
Stippled Epiphyses with Congenital Hypothyroidism (Cretinoid Epiphysial Dysgenesis). W. A. Reilly and F. S. Smyth, San Francisco.—p. 675.
Typical Form of Humerus Varus: Adolescent Humerus Varus. M. S. Burman, New York.—p. 682.
Diverticulosis of the Small Intestine: Report of Case with Intestinal Obstruction. M. J. Hubeny and S. Pollack, Chicago.—p. 689.
Experimental Studies on Gastric Physiology in Man: VI. Relation of Size, Shape and Position of Stomach to Its Acid Secretion: Analysis of Posture, Habitus, Height and Weight as Influencing Factors on Gastric Form, Secretion and Motility. J. Gershon-Cohen, H. Shay and S. S. Fels, Philadelphia.—p. 695.
*Barium Sulfate Suspension in Colloidal Aluminum Hydroxide: Improved Contrast Medium for Roentgenographic Diagnosis of Gastrointestinal Lesions. E. E. Woldman, Cleveland.—p. 705.
Radiation Treatment of Pancreatic Cancer. G. T. Pack and G. McNeer, New York.—p. 708.
Carcinoma of the Urinary Bladder, Cervix Uteri and Prostate Treated by Supervoltage Roentgen Rays: Supplementary Report. J. E. Wirth, Seattle.—p. 715.
New Instrument for Irradiation of Tumors of the Nasopharynx with Radium or Radon. J. V. Blady, New York.—p. 723.
*Pyelo-Ureterography in Inclined Planes. R. J. Price, Dayton, Ohio.—p. 730.
Metastatic Obstruction of the Esophagus. C. W. Perkins, Norwalk, Conn.—p. 737.
Control and Calibration of Roentgenographic Apparatus. C. Weyl, S. R. Warren Jr. and D. B. O'Neill, Philadelphia.—p. 741.

Barium Sulfate in Colloidal Aluminum Hydroxide.—Woldman recommends barium sulfate suspended in colloidal aluminum hydroxide for roentgenographic examination of the gastrointestinal tract as having advantages over the barium-water mixture now generally employed. Because of the colloidal nature of the aluminum hydroxide, the barium is held in suspension and hence can be used in smaller quantities. In these studies 60 Gm. of barium sulfate was added to 7 ounces (210 cc.) of a mixture of equal parts of colloidal aluminum hydroxide and water to form the contrast substance. The preparation is fluid so that it enters all the recesses in a homogeneous manner, and yet viscid and tenacious so that a small quantity coats the wall of the digestive tract and yields a satisfactory roentgenographic visualization of the mucosal folds. The barium sulfate-aluminum hydroxide suspension is nontoxic and does not alter the acid-base equilibrium of the blood. The addition of aluminum hydroxide to the barium mixture does not render it less palatable.

Pyelo-Ureterography.—As an aid in the diagnosis of obscure lesions of the urinary tract, Price always takes a flat pyelo-ureterogram in the horizontal supine position. Then the usual cystoscopic examination is done, followed by sodium iodide or sodium ortho-iodohippurate injection, and another pyelo-ureterogram is taken in the Trendelenburg position. Following this the catheters are drawn down and a pyelo-ureterogram is taken in the erect position. The films may be flat, stereoscopic, oblique or lateral. These positions afford maximal excursion of kidneys and ureters and afford valuable information in determining whether a given condition is postural, functional or organic. The lesions of the ureter, well shown by this routine, include calculus, stricture, kink, stenosis, adhesions, reduplication, mucous membrane valves, megalo-ureter, aberrant implantation, atresia, fascial bands, anomalous vessels, extra-ureteral pressure, neoplasms, cysts, granuloma, chronic ureteritis, rupture into the duodenum and secondary calculus.

Archives of Dermatology and Syphilology, Chicago

38: 837-1044 (Dec.) 1938

Syphilis Among Arabs in the Near East: Bejel and Loath in Irak and Syria; Firjal and Latta in Palestine; Laghout in Lebanon; Abou-Laghif and Jifar in Trans-Jordan. C. M. Hasselmann, Manila, Philippine Islands.—p. 837.
Favus Involving a Toenail: Report of Case. R. M. Montgomery, Mary E. Hopper and G. M. Lewis, New York.—p. 856.
Cutaneous Manifestations of Tularemia. J. M. Hitch, Raleigh, N. C., and D. C. Smith, Charlottesville, Va.—p. 859.
Steatocystoma Multiplex Congenitale: Ten Cases in Three Generations. W. Sachs, Jersey City, N. J.—p. 877.
Symmetrical Erythema of the Soles: "Symmetrical Lividities of Soles of the Feet" (Pernet). J. M. Hitch, Raleigh, N. C., and R. F. Hansen, Des Moines, Iowa.—p. 881.
Hereditary Ectodermal Dysplasia of the Anhidrotic Type (Congenital Ectodermal Defect). L. W. Lord and W. D. Wolfe, Baltimore.—p. 893.
Large Epithelioma of the Cheek: Report of Case. H. N. Roback, Medical Lake, Wash.—p. 902.
*Cosmetic Irritants. L. Tulipan, New York.—p. 906.
Kline Flocculation Test: Its Significance and Application in the Obstetric Service of the Queens General Hospital. Kate Freeman Miller, Corona, N. Y.—p. 918.
*Treatment of Dermatophytosis with Vaccines. J. A. Tolmach and E. F. Traub, New York.—p. 925.
Evaluation of the Frei Test with Mouse Brain Antigen: Comparison with Human Antigen. R. F. Reider and O. Cañizares, New York.—p. 930.
Mycosis Fungoides in Mother and in Daughter: Further Report. U. J. Wile and C. W. Knerler, Ann Arbor, Mich.—p. 939.
*Mapharsen in Treatment of Congenital Syphilis. V. A. Cornell and G. D. Astrachan, New York.—p. 943.

Cosmetic Irritants.—Tulipan points out that cosmetic dermatitis usually appears abruptly and is characterized by erythema, edema, papules, vesicles, exudation, crusts and finally desquamation. It tends to form patches with indefinite borders and is usually accompanied with pruritus. When the condition is chronic the skin becomes thickened, infiltrated, pigmented and fissured. Clinically and microscopically the condition is indistinguishable from eczema. Perfumes, hair dyes, face powders and lotions and, in fact, practically all toilet articles containing such general irritants as alkalis, even though in small quantities, have at some time given rise to dermatitis venenata. Cosmetic preparations may cause irritation of the skin ranging from slight erythema to severe burns. Any product capable of producing such lesions among consumers is even more dangerous to workers in the cosmetic trade. The harmful ingredients in various cosmetics include lead, mercury, pyridine, denatured alcohol, isopropyl alcohol, arsenic, paraphenylenediamine, potassium carbonate, pyrogallol, alkaline sulfides, thallium acetate, salicylic acid, phenol, copper, ammonium and sodium carbonate, silver nitrate, aluminum salts, quinine, quinone bodies, acetone, colocynth, dimethyl sulfate, nitrobenzene, essential, natural and synthetic oils, alum and talc.

Treatment of Dermatophytosis with Vaccines.—On the basis of reports that fungicidal elements existed in the serum of patients with dermatophytosis, Tolmach and Traub prepared a convalescent serum. Their results in sixty-five cases have been so unfavorable that they publish them in order to discourage the waste of patients' time and money and physicians' efforts and to point out that much more experimental work is necessary before such products will have any practical use. Three different vaccines were used. More than 60 per cent of patients were entirely uninfluenced by the treatment. About 9 per cent were apparently cured. The reports of cure and of improvement are subject to question.

Mapharsen in Congenital Syphilis.—Cornell and Astrachan confirm the low toxicity of mapharsen stressed by almost all investigators. The serologic reactions in more than 50 per cent of their thirty-one cases of late congenital syphilis improved as a result of the treatment. This percentage is a fairly good one

in cases of late congenital syphilis, in which biologic cure is difficult to obtain, and in not less than 50 per cent of instances there is a fixed serologic reaction regardless of the treatment given. Several patients who did not respond to neoarsphenamine improved greatly under mapharsen therapy. Mapharsen caused complete reversal of the serologic reactions in 44.4 per cent of the authors' eleven cases of early congenital syphilis after only twelve injections (2.5 mg. average dose) were given (concurrently with the use of bismuth medication). Further experimentation with larger doses of mapharsen will have to be done before any definite conclusion can be reached about its use in early congenital syphilis.

Archives of Internal Medicine, Chicago

62: 903-1104 (Dec.) 1938

Course of Polycythemia. N. Rosenthal and F. A. Bassen, New York. —p. 903.

*Utilization of Intravenously Injected Sodium *d*-Lactate as Test of Hepatic Function. L. J. Soffer, D. A. Dantes and H. Sobotka, with assistance of Mildred D. Jacobs, New York.—p. 918.

Hepatic Complications in Polycythaemia Vera, with Particular Reference to Thrombosis of the Hepatic and Portal Veins and Hepatic Cirrhosis. A. R. Sohval, New York.—p. 925.

Blood "Guanidine" in Arterial Hypertension: Review of 800 Cases. R. H. Major, Kansas City, Kan.—p. 946.

Clinical Aspects of Aneurysm. J. H. Mills and B. T. Horton, Rochester, Minn.—p. 949.

*Articular Manifestations of Meningococcic Infections. A. J. Schein, New York.—p. 963.

*Circulation During Pregnancy. C. S. Burwell, Boston; W. D. Strayhorn, D. Flickinger, M. B. Corlette, E. P. Bowerman and J. A. Kennedy, Nashville, Tenn.—p. 979.

Thalassanemia: Report of Case. E. S. Mills, Montreal.—p. 1004.

Sympathetic Vasodilator Fibers in Upper and Lower Extremities: Observations Concerning the Mechanism of Indirect Vasodilatation Induced by Heat. T. J. Fatheree and E. V. Allen, Rochester, Minn. —p. 1015.

Syphilis: Review of Recent Literature. P. Padget, M. Sullivan and J. E. Moore, Baltimore.—p. 1029.

Sodium *d*-Lactate in Test for Hepatic Function.—Soffer and his associates differentiated between extrahepatic and hepatic jaundice by determining the utilization of sodium *d*-lactate injected intravenously. The test is dependent essentially on the ability of the intact parenchyma of the liver to convert into glycogen the lactic acid that is circulating in the blood stream. The normal person is capable of utilizing all or almost all the injected *d*-lactate within thirty minutes. None of twenty-five normal persons retained more than 5 mg. per hundred cubic centimeters of the injected lactate at the end of half an hour. Of twenty-seven patients with acute diffuse hepatic parenchymal damage with jaundice twenty-six showed retention of 5 mg. or more per hundred cubic centimeters of the injected sodium *d*-lactate after thirty minutes. In thirteen instances of jaundice due to extrahepatic obstruction only one showed an abnormal retention of sodium *d*-lactate. The test was used on five patients with diabetes of mild, moderate or severe intensity. The first patient, with a blood sugar value of 150 mg. per hundred cubic centimeters during fasting, showed a retention of 5.2 mg. per hundred cubic centimeters of lactic acid above the control level. This patient, however, had a large liver, which extended to the level of the umbilicus. The remaining four patients, despite considerable elevation of the blood sugar level, utilized the injected sodium *d*-lactate in a normal fashion. Other hepatic function tests were compared and it was found that in the patients with hepatitis the sodium *d*-lactate and the sodium benzoate tests yielded the greatest incidence of positive results, while the galactose tolerance test and the determination of the ratio of total cholesterol to cholesterol ester showed hepatic damage in only approximately half the instances. For the group of patients with obstructive jaundice the results obtained with the sodium benzoate test were misleading, since in ten instances of proved extrahepatic obstruction with icterus the latter tests yielded seven positive results. In the group of thirteen patients with obstruction, the results with the sodium *d*-lactate test were negative for twelve and the results of the galactose tolerance test were negative for eleven, whereas the determination of the ratio of total cholesterol to cholesterol ester indicated no hepatic damage in nine instances.

Articular Manifestations of Meningococcic Infections.—Schein presents twenty-three cases and reviews the literature on articular manifestations of meningococcic infections. The study was prompted by a case of meningococcic arthritis (the patient was seen at Bellevue Hospital after cerebrospinal meningitis) which went on to destroy several joints and produce ankylosis. This was contrary to the author's understanding of the prognosis in this condition. The reports of these cases were selected from the records of the last ten years of Bellevue Hospital (seventeen cases), of Mount Sinai Hospital (four cases) and of private physicians (two cases). All the patients had meningitis at some time during the course of the disease; some had clinical and bacteriologic meningococcemia. The age, sex, severity and duration of the infection and type of treatment (excluding the more recent specific antitoxic antiserum and sulfanilamide) have no influence on the severity, frequency, duration or joints involved in the arthritic lesions. In two cases the articular manifestations preceded the meningitis and in several others the meningeal signs were of such low grade, compared with the accompanying arthritic symptoms, that the diagnosis was confused. In the remaining cases the onset of articular manifestations ranged from the second or third day after full-blown meningitis to as late as four weeks. In one case obvious articular involvement was present only after two and one half months, but since the stupor of the patient was so prolonged and the lesions were so deeply placed this involvement may have been overlooked until then. More than half of the patients showed articular involvement between the fifth and the twelfth day after onset of the general infection. Serum sickness occurred in eleven cases and was questionable in several others, swelling of the joints being the only symptom. Of the joints which became badly destroyed, the elbow was involved in two cases, the hip in two, the wrist in one and the knee in one. Involvement of the knees and hands tended to be more arthritic than arthralgic. The small joints of the hands and feet were attacked in one infant. All the authors who have presented groups of cases of meningococcic arthritis have emphasized the innocuousness of this condition and its fine prognostic import. These and the authors of the textbooks consulted have stated that resolution is the only result to be expected. However, in three cases in this series the joints were permanently destroyed. In addition to these cases the severity of meningococcic invasion of joints is attested by the fact that in six cases aspiration was necessary, in four cases splinting with circular or molded plaster splints was resorted to and in two cases traction was employed to correct flexion deformity of the knee. In only one case was antiserum injected intra-articularly. Three patients died. In none did the arthritis have any relation to the fatal outcome. This confirms the benign prognosis given in the literature as to the outcome of the general infection in patients who show the arthritic complication. The more severe articular manifestations occurred in persons more than 12 years of age, including the cases in which ankylosis resulted and those in which orthopedic treatment was required. In children, then, the outcome of meningococcic arthritis is truly benign, but in adults it is by no means so. In recent cases of meningitis in which antitoxic antiserum (Hoyne) has been given there has been a lower incidence of complications as well as a lower mortality rate than in controlled series in which ordinary antiserum was employed. It is possible that the newer types of treatment, antitoxic antiserum and possibly sulfanilamide, may eliminate meningococcic arthritis, especially in its ankylosing forms.

Circulation During Pregnancy.—Burwell and his colleagues find that the chief alterations in the circulation of pregnant women are an increased cardiac output per minute, a decrease in the arteriovenous difference, a rise in the pressure in the veins of the lower extremities, an increase in pulse rate and pulse pressure, a loud bruit over the site of the placenta and an increase in the total blood volume. The demonstrated phenomena of the circulation in pregnant women and pregnant animals, plus the available knowledge concerning the structure of the placenta, lead to the conclusion that the changes in the circulation during pregnancy are in the main to be ascribed to two mechanisms: (1) an arteriovenous leak through the placenta and (2) an obstruction to venous return by the enlarged uterus.

Archives of Otolaryngology, Chicago

28: 841-1050 (Dec.) 1938

Benign Tumors of the Larynx: Study of 722 Cases. G. B. New and J. B. Erich, Rochester, Minn.—p. 841.
Nasal Teeth: Report of Case. W. J. Hitschler, Philadelphia.—p. 911.
Malignant Disease of the Ear. F. R. Spencer, Boulder, Colo.—p. 916.
Acoustic Motor Reactions, Especially the Cochleopalpebral Reflex. H. Strauss, C. Landis and W. A. Hunt, New York.—p. 941.
Present Status of the Problem of Otosclerosis. J. G. Wilson, Chicago.—p. 946.
Auditory Threshold of Unpleasantness in Normal and in Hard of Hearing Subjects. M. Ansberry, Tempe, Ariz.—p. 954.
Thrombosis of the Lateral Sinus: Survey of Current Opinion and Records. W. H. Evans, Youngstown, Ohio.—p. 959.
Advances in the Field of Allergy as Related to Otolaryngology During the Year 1938. W. W. Duke and C. M. Kohn, Kansas City, Mo.—p. 1003.

California and Western Medicine, San Francisco

49: 425-504 (Dec.) 1938

Chronically Ill and Convalescent Patients: Their Care in Institutions: Medical and Statistical Survey of the Inmates of the Laguna Honda Home, San Francisco. J. C. Geiger, Roslyn Miller and Hilda F. Welke, San Francisco.—p. 430.
Tuberculosis in San Quentin. L. L. Stanley, San Quentin.—p. 436.
Regional Anesthesia and the Acute Abdomen. E. C. Moore, Los Angeles.—p. 439.
Goiter: Its Clinical Management. M. H. Soley, San Francisco.—p. 443.
*Hypoglycemia in Relation to the Anxiety States and the Degenerative Diseases. J. F. Quinlan, San Francisco.—p. 446.
Pollen Survey: Report on the Arcata District Humboldt County, Calif. W. C. Deamer, H. L. Jenkins, Arcata, and Dorothy Scott Lazarus, San Francisco.—p. 450.
Relation of Childhood Infections to Behavior. A. R. Timme, Los Angeles.—p. 454.

Hypoglycemia.—From his study of the relation of anxiety states and degenerative diseases to hypoglycemia, Quinlan concludes that hypoglycemia may be a transient phenomenon but that there is good reason to believe that it is a constant feature of chronic states which are significant from the standpoint of prophylaxis in cancer, degenerative arthritis and noninfectious cardiovasculorenal disease. Hypoglycemia is pathognomonic of an anxiety state; treatment directed against it primarily is only symptomatic and highly empiric. Anorexia nervosa as a disease is not confined to women, the symptom complex being modified only by the differing gonadal component. It is a redundance in diagnosis and serves only to confuse a phase of medicine not yet clearly defined and distorts, by exaggeration, one symptom, anorexia, in a train of symptoms more adequately defined under the generic title "anxiety neurosis." An anxiety state is a primary etiologic factor in the degenerative diseases. Endocrine incoordination is its immediate effect. Defective cholesterol catabolism is the result. The prevention of the degenerative diseases lies in the body's capacity completely to excrete or catabolize cholesterol which is in excess of the needs of the body. The problem of medicine, in the face of a cumulatively aging population, is the degenerative diseases.

Journal of Experimental Medicine, New York

68: 789-962 (Dec.) 1938. Partial Index

Studies on Nasal Histology of Epidemic Influenza Virus Infection in the Ferret: I. Development and Repair of the Nasal Lesion. T. Francis Jr. and C. H. Stuart-Harris, New York.—p. 789.
Id.: II. Resistance of Regenerating Respiratory Epithelium to Reinfection and to Physicochemical Injury. C. H. Stuart-Harris and T. Francis Jr., New York.—p. 803.
Id.: III. Histologic and Serologic Observations on Ferrets Receiving Repeated Inoculations of Epidemic Influenza Virus. T. Francis Jr. and C. H. Stuart-Harris, New York.—p. 813.
*Plasma Prothrombin: Effect of Partial Hepatectomy. E. D. Warner, Iowa City.—p. 831.
Cellular Reactions to Tuberculoproteins Compared with Reactions to Tuberculolipids. Florence R. Sabin, New York.—p. 837.
Cellular Reactions to Defatted Tubercle Bacilli and Their Products. Florence R. Sabin and A. L. Joyner, New York.—p. 853.
Study of Human Skin Grafted on Chorio-Allantois of Chick Embryos. E. W. Goodpasture, B. Douglas and Katherine Anderson, Nashville, Tenn.—p. 891.
Lymphatic Pathway from the Nose and Pharynx: Absorption of Certain Proteins. J. M. Yoffey, E. R. Sullivan and C. K. Drinker, Boston.—p. 941.

Plasma Prothrombin and Partial Hepatectomy.—Warner presents further support for the theory that the liver has an essential part in the manufacture of prothrombin by experiments showing that partial hepatectomy in rats also lowers the prothrombin level of the plasma. The degree of lowering is somewhat variable from rat to rat, but in many instances the prothrombin falls to extremely low levels during the first twenty-four hours after operation. The prothrombin level returns to normal in the period required for restoration of the liver to normal weight.

Kentucky Medical Journal, Bowling Green

36: 539-590 (Dec.) 1938

Stockholders of Health. W. E. Gardner, Louisville.—p. 541.
Medical Education of the Public. C. Bailey, Harlan.—p. 546.
Acute Appendicitis: Study in Mortality. F. M. Massie, Lexington.—p. 550.
Medical Treatment of Pyogenic Inflammation of the Nose and Nasal Accessory Sinuses. S. Watkins, Louisville.—p. 554.
The Development of Ophthalmology in Kentucky. A. O. Pfingst, Louisville.—p. 561.
Mucous Membrane Lesions of Interest to the General Practitioner. A. B. Loveman, Louisville.—p. 569.
Clinical Types of Hyperinsulinism and Its Relation to Convulsive Seizures. S. Harris, Birmingham, Ala.—p. 575.

Missouri State Medical Assn. Journal, St. Louis

35: 467-512 (Dec.) 1938

Pneumonia: Recent Advances in Diagnosis, Treatment and Public Health Control. H. I. Spector, St. Louis.—p. 467.
Id.: Causes and Complications. M. P. Neal, Columbia.—p. 470.
Biology of Pneumonia. W. Baumgarten, St. Louis.—p. 476.
Types and Typing of Lobar Pneumonia. H. Allen, St. Louis.—p. 477.
Technic of Dosages and Use of Antiserums for Lobar Pneumonia. J. J. Hammond, St. Louis.—p. 477.
Prognosis in Lobar Pneumonia. C. H. Neilson, St. Louis.—p. 478.
The St. Louis Health Division Program for the Control of Pneumonia. H. I. Spector, St. Louis.—p. 479.
Pneumococcus Typing and Specific Therapy. E. H. Schorer, Kansas City.—p. 480.
Hyperthyroidism: New Clinical and Laboratory Concepts. R. V. Byrne, Los Angeles.—p. 480.
Gallstone Ileus. S. F. Beam, St. Louis.—p. 485.
Pulmonary Tuberculosis: Early Diagnosis: Perennial Problem. P. Murphy and A. J. Steiner, Koch.—p. 487.
Cancer Therapy: Present Possibilities and Future Expectations. F. J. Taussig, St. Louis.—p. 489.

New Jersey Medical Society Journal, Trenton

35: 709-778 (Dec.) 1938

Office Treatment of the Common Rectal Disorders. J. Gerendasy, Elizabeth.—p. 713.
A Record Breaking Hernia. L. S. Sica, Trenton.—p. 720.
Some Considerations in Gallbladder Surgery: Analysis of 100 Cases. V. B. Seidler, Montclair.—p. 723.
Gallbladders That Require Surgical Treatment. M. Danzis, Newark.—p. 729.
Types of Gallbladder for Medical Treatment. F. G. Reed, East Orange.—p. 733.
Hydrotherapy and Its Use at the Betty Bacharach Home. D. B. Allman, Atlantic City.—p. 735.
Congenital Absence of the Esophagus: Report of Case. S. O. Wilkins, Red Bank.—p. 737.

Oklahoma State Medical Assn. Journal, McAlester

31: 399-438 (Dec.) 1938

Factors of Safety in Surgery of Toxic Goiter. R. M. Howard, Oklahoma City.—p. 399.
*Masked Intermittent Malaria: A Study. D. W. Gillick, Shawnee.—p. 404.
Treatment of Acute Empyema. H. D. Collins, Oklahoma City.—p. 410.
The Sinus Problem. W. L. Bonham, Oklahoma City.—p. 414.
Surgical Treatment of Ectropion and Entropion. C. B. Barker, Guthrie.—p. 418.

Masked Intermittent Malaria.—Gillick states that the masked intermittent type of malaria may assume the forms of paresthesia, anesthesia, convulsion or paralysis. It may also appear under the guise of edema, hemorrhages from the various mucous outlets of the body or into the skin, diarrhea, dysentery, dyspepsia, bronchitis, pneumonia, appendicitis and the like. Since infections such as the foregoing may obey the law of periodicity, one is not justified in making a diagnosis of malaria unless the condition yields readily to specific therapy or the parasite is found. In most cases of masked malaria the author found the estivo-autumnal parasites. The organism appeared as a small hyaline disk, a ring form within the red blood corpuscle, often but few being present. Another feature of the hematologic study of these cases was the marked leukopenia ranging down sometimes to as low as 3,000, and in the differential diagnosis a marked monocytosis was observed which seems to be characteristic of chronic malarial infection in the afebrile period.

Radiology, Syracuse, N. Y.

31: 651-786 (Dec.) 1938

Disklike Atelectases. A. Oppenheimer, Beirut, Lebanon, Syria.—p. 651.
Roentgen Diagnosis of Intussusception. J. B. Kirsner and J. F. Miller, Chicago.—p. 658.
Effect of Treatment of Brain Tumors with Roentgen Rays: Review of University Hospital Cases. C. B. Nessa, Minneapolis.—p. 670.
Roentgen Diagnosis of Pregnancy. J. F. Elward and J. F. Belair, Washington, D. C.—p. 678.
Lymphoblastoma with Signs of Renal Involvement Improved by Roentgen Therapy: Report of Three Cases. H. M. Odel and W. C. Popp, Rochester, Minn.—p. 687.
Palliative Results in Radiation Therapy of Advanced Carcinoma of the Cervix. A. B. Friedman, Brooklyn.—p. 693.
Biophysical Basis of Ultra Short Wave Therapy. B. Rajewsky, Frankfort-on-the-Main, Germany; translation by Edith H. Quimby, New York.—p. 697.
Newer Studies on Clinical Application of Very Short Electrical Waves. J. Paetzold, Erlangen, Germany.—p. 707.
The Roentgen Diagnosis of Retrocecal Appendix. F. E. Butler and I. M. Woolley, Portland, Ore.—p. 713.
*Methods Used to Attain High Speed in Roentgenography. N. C. Beese, Bloomfield, N. J.—p. 716.
Results of Radiation Therapy in Primary Operable Rectal and Anal Cancer. G. E. Binkley, New York.—p. 724.
*Carcinoma of the Cervix: Mortality Reduction. W. Clarkson and A. Barker, Petersburg, Va.—p. 729.

High Speed Roentgenography.—Beese believes that the chief advantage of using condenser discharges in roentgenography is the reduction of blurring caused by motion. This results in increased sharpness of detail. Other desirable features, such as uniformity of film density in successive exposures, are obtained because exposure times are eliminated. With a relatively small x-ray transformer and power lines of low capacity, one can do roentgenographic work equivalent to that done with the largest commercial x-ray machines.

Carcinoma of the Cervix: Mortality Reduction.—Clarkson and Barker point out that cancer of the cervix accounts for nearly 20 per cent of all deaths from cancer in women. Their observations agree with those of Norris, who thinks that a cross section of all cases of carcinoma of the cervix will show five year survivals of not more than 10 per cent. When one considers the fact that five year survivals of well over 50 per cent have been reported following proper roentgen treatment of moderately advanced cases, it becomes obvious that the number of deaths can be greatly reduced by the more effective application of treatment methods. Inadequate knowledge of cancer and geographic inertia afflict both the average physician and the general public. Through close cooperation with local medical societies, rotating cancer clinics could carry cancer control to the public and to the physicians. The establishment of cancer clinics would stimulate the demand for specialization in oncology and there is no field of medicine in which intense specialization is more urgently needed.

Texas State Journal of Medicine, Fort Worth

34: 517-584 (Dec.) 1938

Surgical Lesions of the Stomach and Duodenum. W. Walters, Rochester, Minn.—p. 521.
*Acetyl Beta Methylcholine Chloride by Iontophoresis in the Treatment of Arthritis and Certain Peripheral Vascular Disturbances of the Extremities. O. B. Kiel, Wichita Falls.—p. 530.
Aneurysm of the Pulmonary Artery. W. W. Waite, El Paso.—p. 535.
The Neurocirculatory Syndrome. W. E. Nesbit, San Antonio.—p. 537.
Heart Disease, with Especial Reference to Early Diagnosis and Treatment. W. G. Mitchell, San Angelo.—p. 541.
Effect of Pituitary Disorders on the Heart: Report of Two Cases. C. H. Burge and J. S. Shaver, Galveston.—p. 544.
Diagnosis of Acute Mastoiditis. A. N. Champion, San Antonio.—p. 550.
Hoarseness. T. Barr, Dallas.—p. 553.
The Problem of Drug Addiction. T. Parran, Washington, D. C.—p. 555.
The New Deal and the Socialization of Medicine. W. B. Russ, San Antonio.—p. 558.
Defects of Provision for Medical Services Under the Texas Workmen's Compensation Insurance Act. K. E. Ashburn, Lubbock.—p. 563.

Iontophoresis in Arthritis and Vascular Diseases.—Of the 161 individual cases that Kiel treated with acetyl beta methylcholine chloride iontophoresis, seventy-eight were rheumatoid arthritis, twenty-three osteo-arthritis and sixty an assortment of vascular diseases. Forty-three of the seventy-eight patients with rheumatoid arthritis are reported as "completely relieved" (the involved joints function in a normal manner), twenty-six as "partially relieved," and nine as having no relief. Any patient reported as partially relieved had a reduction in the swelling of the joints, some relief of the pain, an increase in endurance, lessening of fatigability and a feeling that considerable good had been accomplished by the treatment. Of the twenty-three patients with osteo-arthritis four were completely relieved, ten were partially relieved and nine experienced no relief. In the miscellaneous group three of eight patients with thrombo-angiitis obliterans were completely relieved or restored to a normal state of health. Of the six patients with gonorrheal arthritis five were completely relieved. These cases in many respects simulate rheumatoid arthritis. Specific therapy was a necessary adjunct to the treatment of these cases. The remainder of the cases are classified as Raynaud's disease, neuritis, bursitis, myositis and traumatic arthritis. Of the total number of patients in this group thirty-five were completely relieved, fourteen were partially relieved and seventeen received no relief. In the rheumatoid group a total of 1,824 treatments were given, representing an average of twenty-three treatments for each patient. The osteo-arthritic patients received a total of 533 treatments, averaging twenty-three treatments per patient. In the miscellaneous cases 1,525 treatments were given, with an average of about twenty-five treatments each. By far the greater number of treatments was given to those affected with thrombo-angiitis obliterans. The least number of treatments with the most encouraging results was given the group of patients with ulcers of the extremities. No patient with a clearcut, uncomplicated ulcer received more than eighteen treatments.

United States Naval Med. Bulletin, Washington, D. C.

36: 455-646 (Oct.) 1938. Partial Index

Gastric Surgery: Discussion of the Present Day Trends. F. R. Hook.—p. 455.
Diagnostic Errors in Diseases of the Colon, with Illustrative Case Reports. J. Burke.—p. 482.
Treatment of Lung Abscess. R. M. Mayne and T. G. Clement.—p. 487.
Ruptured Cruciate Ligaments of the Knee: Modified Hey Groves Reconstruction Operation with Case Reports. E. M. Wade.—p. 491.
*Improved Method of Lip Fixation for Harelip and Other Defects. E. C. Ebert and R. C. Boyden.—p. 501.
Healing Time in Fractures of the Mandible. C. C. Welch and R. W. Taylor.—p 513.
A Formula for Immediate Chemical Prophylaxis. H. W. Smith.—p. 522.
Active Immunization Against Tetanus: Using Alum Precipitated Tetanus Toxoid. R. Hayden and W. W. Hall.—p. 524.
Mental Diseases in the United States Navy: Comparative Analysis of the Incidence. F. L. McDaniel.—p. 536.
Penalties of Upright Posture. R. A. Benson.—p. 563.

Improved Method of Lip Fixation.—Ebert and Boyden treated a relatively large number of cases of congenital deformities of the lip by the following technic: Fixation is accomplished by impaling the lip on an ordinary wooden tongue depressor with heavy common bankers' pins. Closure lines having been marked out, the incision is made along these lines. The authors prefer to employ a new sterile razor blade held in a curved hemostat. Approximation of the segments of the lip is rendered more facile and exact by manipulation of the free ends of the tongue depressors. The edges are brought into place and held there by an assistant while the operator places the sutures. The cosmetic and functional results in the cases in which operation was performed were exceptionally satisfactory.

West Virginia Medical Journal, Charleston

34: 533-580 (Dec.) 1938

Injuries of the Knee Joint. C. B. Pride, Morgantown.—p. 533.
Surgical Treatment of Peptic Ulcer. I. Abell, Louisville, Ky.—p. 540.
Advantages Offered by an Organized Anesthetic Service. H. S. Ruth, Philadelphia.—p. 545.
Sulfanilamide in Treatment of Typhoid Fever: Case Report. F. S. Harkleroad, Beckley.—p. 549.
Hyperfunctioning Lesions of the Ductless Glands. W. Walters and E. J. Kepler, Rochester, Minn.—p. 550.
Report on Hospital Service Association After Five Years of Continuous Operation. R. O. Rogers, Bluefield.—p. 558.
Umbilical Hernia at Birth Containing Viscera Other Than Intestines: Case Report. W. M. Warman, Morgantown.—p. 563.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

British Medical Journal, London

2: 1071-1126 (Nov. 26) 1938

Cancer of the Breast. G. Gordon-Taylor.—p. 1071.
Treatment of Pain in the Face by Intramedullary Tractotomy. G. F. Rowbotham.—p. 1073.
*The Employment of Diabetics. R. D. Lawrence and Kate Madders.—p. 1076.
Acute Bulbar Paralysis: Report of Two Cases. D. M. Anderson and J. H. Dixon.—p. 1077.
Hemorrhage Following Tonsillectomy. D. W. Ashcroft.—p. 1079.
Perforated Peptic Ulcer in Organic Nervous Disease. A. H. Hunt and E. C. O. Jewesbury.—p. 1082.
Administration of Pituitary Extract in the Third Stage of Labor. G. W. Blomfield.—p. 1083.

Employment of Diabetic Persons.—Lawrence and Madders consider the discriminating attitude of employers against diabetic employees as unfair and unjust. This attitude is a survival of preinsulin days, when ill health and early death of the diabetic employee were the rule. In an effort to remedy this handicap of the diabetic employee the authors studied 100 employed diabetic persons. This investigation showed that 77 per cent lost no time from work because of their diabetes after the initial stabilization of treatment; the figure is 85 per cent if the ultimate stabilization on insulin of another 8 per cent originally treated by diet alone is included. About 55 per cent of the employees lost some time because of illnesses unconnected with their diabetes. The survey has no statistical accuracy but it does show that most diabetic persons treated adequately are good employees from the point of view of health. It is hoped that the widespread prejudice against their employment may be removed.

2: 1127-1188 (Dec. 3) 1938

The Septic Hand. D. Wilkie.—p. 1127.
The Correct Name of the Malignant Tertian Malaria Parasite. R. Christophers and J. A. Sinton.—p. 1130.
Management of Trial Labor and Selection of Cases. W. Hunter.—p. 1134.
*Acute Anterior Poliomyelitis: Four Simultaneous Cases in a School. G. O. Barber.—p. 1137.
Rapid Production of Autogenous Vaccine for Treatment of Pneumonia: Notes on Its Use. F. P. G. de Smidt.—p. 1140.
*2-Sulfanilyl-Aminopyridine (M & B 693) in Treatment of Gonorrhea. R. C. L. Batchelor, R. Lees, Marjorie Murrell and G. I. H. Braine.—p. 1142.

Acute Anterior Poliomyelitis.—Four cases of acute anterior poliomyelitis occurring on the same day in a boys' school are reported by Barber. Since no other cases occurred in this school, a close analysis was made of the daily habits and lives of these four boys. Cases did appear later in the village and two of them occurred in the family of one of the maids employed by and living in the same house of the school that the four boys lived in. These cases were attributed to the maid having carried the infection home. As she was in the house for the rest of the term and no further cases occurred there, and as one attempt to infect a monkey from her proved negative, there is no actual evidence that she was a carrier. The house in which the four boys lived has separate feeding arrangements and a separate domestic staff from the rest of the school. Only two of the boys slept in the same dormitory. The other two were in different dormitories, and each was unconnected with the others in any activity. In the house-room all four were in different corners and one of them was present only occasionally as a house prefect. In the school all four were well scattered, being in different classes and other categories. The only common factors appeared to be the same feeding arrangements and contact with the same domestic staff. The only connection with food was that strawberries, obtained from two farms (one of them at Halstead which had been affected) were served only in the house in which the affected boys lived. If it is conceivable that the virus should be present in such contamination, accident would no doubt account for its being ingested by only a small number of those eating the fruit. The simultaneous onset certainly resembles a food-poisoning outbreak rather than an epidemic spread by droplet infection. This possible route of infection has already been discussed by Kling in Sweden on rather different evidence. The present account is given with the object of suggesting an additional line of investigation.

Sulfapyridine in Gonorrhea.—Batchelor and his co-workers used sulfapyridine in the treatment of 102 cases of gonorrhea. Apparent cures were obtained in more than 91 per cent of the patients. Toxic effects were encountered in 29 per cent. The commonest manifestations of intolerance were nausea and headache, and in most instances these symptoms were slight and the patients were able to continue with the treatment in reduced dosage. In the successful male cases, clinical cure was attained in less than a week. In the successful female cases, signs which might be interpreted as denoting infection persisted for two weeks but gonococci disappeared from the smears almost as quickly as in the male cases (less than three days). Thus in the early cases the gonococcic infection was cured before the time when the disabling complications, epididymitis or salpingitis, are to be expected. Also cure was effected without the time-consuming and often badly applied local irrigation treatment. In the future the fear of stricture of the urethra, with its ever present threat of retention or extravasation of urine, should be much less and the depressing picture of the chronic pelvic invalid should be less often encountered among the habitués of spas and health resorts. Above all, the possibility of spread of the disease should be greatly reduced, since the period of infectivity is shortened.

Medical Journal of Australia, Sydney

2: 845-886 (Nov. 19) 1938

Nonsurgical Drainage of Alimentary Tract: Lyon's Technic. W. R. Angus.—p. 845.
Extrapleural Artificial Pneumothorax. A. H. Penington.—p. 851.
Schick Testing and Carrier Rates After Diphtheria Immunization. J. M. Dwyer.—p. 852.
Note on Administration of Vinyl Ether. G. Kaye.—p. 856.
Gas Gangrene. C. Craig.—p. 860.
Use of Derivatives of Acetylcholine and Eserine in Retention of Urine. G. Brown.—p. 863.

South African Medical Journal, Cape Town

12: 781-828 (Nov. 12) 1938

Specialism and Teamwork. G. E. Nesbitt.—p. 783.
From the Hospital's Point of View. L. S. Robertson.—p. 787.
Treatment of Supracondylar Fractures. J. Ritchkin.—p. 792.
Some Remarks on Gout in Holland. J. van Breemen.—p. 793.
Sulfanilamide in Treatment of Venereal Diseases. F. W. F. Purcell.—p. 796.

12: 829-866 (Nov. 26) 1938

Compost from Urban Waste. P. le Fras Nortier.—p. 831.
Some Aspects of Strabismus. E. F. Birkenstock.—p. 833.
*Experimental Studies on Treatment of Malarial Splenomegalies by Method of Ascoli. I. Froilano de Mello.—p. 835.
Notes on Epidemiology and Parasitology of Malaria. A. Soeiro and A. Rebelo.—p. 841.
Anemia in Pregnant and Parturient Women. J. J. C. Pietersen.—p. 848.

Treatment of Malarial Splenomegalies by Ascoli Method.—Froilano de Mello used the method of Ascoli in the treatment of twenty cases of malarial splenomegaly. The method consists in the daily intravenous injection of increasing doses of epinephrine. The beginning dose is 0.01 mg. and it is increased daily by 0.1 mg. until 0.1 mg. is reached. This last dose (0.1 mg.) is continued for twenty days. The reduction of the spleen, in the author's experience, has rarely been absolute by the Ascoli method alone. In the majority of cases it has reached about 50 per cent of the initial hypertrophy. The combination of Ascoli's method with specific antimalarial chemotherapy has given in one case unexpectedly good results. But more observations are required to give value to such combined treatment. In some patients the amelioration in the general state is more pronounced than the reduction of the spleen. The method of Ascoli does not prevent relapses. The number of injections and the unpleasant, sometimes serious, symptoms (bodily sensation of heat, decrease in pulse rate, palpitation, abdominal cramps, tremors, cardiac arrhythmia, giddiness and the like) observed do not recommend such a method as an advisable routine treatment, at least among the malarial folk in rural India. However, the use of such a method in hospital practice should be encouraged, provided the unpleasant reactions are avoided, either by a less diluted dosage or by some process of desensitization requiring further research.

Archives des Maladies de l'Appareil Digestif, Paris

28: 913-1040 (Nov.) 1938

Pancreatic Lithiasis and Diabetes. M. Labbé.—p. 913.
*New Method of Treatment of Ulcer of Stomach and of Duodenum. S. Okada and T. Doi.—p. 935.
Regarding "Rapid Duodenal Catheterization" and Device Suggested by M. Schlumberger. L. Camus.—p. 949.
Hysteria and Neurasthenia in Digestive Pathology. P. Godard.—p. 953.
New Method of Treatment of Chronic Constipation. B. P. Kouchelevsky and E. I. Milutine.—p. 970.

Treatment of Gastric and Duodenal Ulcer.—Okada and Doi prepared an extract from the mucosa of the stomach and another one from the mucosa of the duodenum. The two preparations, which contain all the essential parts of the two mucosas, have a regenerating effect which is specific for the mucosas of the stomach and the duodenum respectively. The authors administered the preparations by intravenous injection in sixty cases. Discussing the mode of application, they say that the patients who were treated at the hospital were usually given one injection daily. The initial dose is usually 0.5 cc., but this quantity is gradually increased. After about thirty injections have been given the treatment is usually terminated, but some patients require a more, others a less prolonged treatment. Toward the end, some patients are treated with diminishing doses. It seems that at the beginning the best dose is 2 cc. If after five injections of this dose the symptoms diminish, the same dose is repeated; if not it is increased to 3 cc. Occasionally 4 or 5 cc. may be administered. The authors say that the results obtained with this treatment are highly satisfactory. Of the eighteen patients with gastric ulcer who were treated with extract of the gastric mucosa, fourteen were cured and four were improved. Of four patients with gastric ulcer who were treated with duodenal extract, two were cured and two improved. Of thirty-six patients with duodenal ulcer who were given duodenal extract thirty were cured and four improved, and of the six patients with duodenal ulcer who were treated with the extract of gastric mucosa one was cured and four were improved. The late results seem to be favorable in about two thirds of the cases; however, additional observations will be necessary for a final evaluation.

Journal de Radiologie et d'Electrologie, Paris

22: 529-576 (Nov.) 1938. Partial Index

*Radicular Paralyses of Obstetric Origin and Their Treatment. P. Duhem, Monmignaut and Moro.—p. 531.
Roentgenologic Aspects of Almost Generalized Osteoperiostosis Associated with Hypertrophy of Palpebral Tarsi, of Teguments of Face and of Extremities of Members: New Syndrome. J. N. Roy and A. Jutras.—p. 539.
Radiosensitivity of Ewing's Tumors. G.-C. Leclerc.—p. 550.
Diverticulum of Duodenojejunal Angle. G. Dumont.—p. 552.
Turgid and Diffuse Cystic Aspect of Inferior Maxilla in a Senegalese. Castay.—p. 556.
Voluminous Coxofemoral Osteosarcoma of Left Side. Carteret, Dillenseger and P. Bertrand.—p. 558.

Radicular Paralyses of Obstetric Origin.—The radicular paralyses that are the subject of this paper by Duhem and his associates are generally caused either by obstetric traumatism in the course of delivery or by accidental traumatism of the shoulder and neck during life. It is generally considered that three types of factors are likely to cause the appearance of radicular paralyses: (1) osseous lesions on the superior extremity of the humerus, (2) lesions of the shoulder joint and (3) direct lesions of the motor nerves of the cervical region (brachial or cervical plexus). All these lesions can be produced in the course of difficult labor with or without the application of forceps; in normal deliveries they are rare but not impossible. The determination as to which of the three possible causal factors is responsible in an individual case is usually not difficult. If there is a doubt as to whether a voluminous hematoma or a deformation of the epiphysial region is responsible, roentgenoscopy will reveal it. The clinical aspects, the paralysis and electrodiagnosis will disclose whether a nervous lesion exists. Electrodiagnosis is resorted to when roentgenoscopy has demonstrated that osseous or articular lesions are absent. To be sure, the nervous lesions do not manifest themselves immediately by a reaction of degeneration; a certain time is necessary, which is rarely less than two weeks. The diagnosis may be complicated by the fact that the lesions are multiple. Distortions or epiphysial detachments may be accompanied by vascular lesions (lacerations and the like), which may be the cause of ischemic troubles and these in turn of secondary paralyses. In view of the complex nature of some of the lesions (osseous, tendinous, nervous and so on), it has been suggested that the general and inclusive term of "traumatisms of the shoulder of the newborn" be applied. The authors point out that the complex lesions result in the formation of perinervous and perivascular cicatricial tissues, which are the principal factors that prevent a spontaneous cure. This is why they utilize the solvent action of potassium iodide, which is introduced in situ by means of galvanic current. It was Leduc who gave them this idea of the solvent action of the iodine ion. This treatment must be employed as early as possible, particularly in case of nervous lesions, for the functional results become problematic if the nerve fibers have had time to degenerate. The authors discuss the sites of application of the electrodes (Erb's point and axilla) and state that they employ a 1 per cent solution of potassium iodide. The applications last thirty minutes and are made with an intensity of 4 or 5 milliamperes. The authors begin with a series of twenty treatments, the first seven or eight of which are given daily. After an interval of three or four weeks the treatments are resumed. In most cases a second and third series of treatments are necessary and in grave cases the treatments may have to be continued for eighteen months or two years. In answer to the question whether excitomotor current should be applied to the paralyzed muscles, the authors say that this depends on the electrical reactions. If from the beginning no reactions of degeneration are observed, the treatment with potassium iodide rapidly effects cure and the excitomotor currents may be employed to give more force to the recuperated muscles. In case of partial degeneration it is necessary to await amelioration, because if not employed with great care the excitomotor current may be more harmful than beneficial. The authors advise against the use of the faradic current because it is too brutal. In the conclusion they stress the necessity of persistence on the part of the physical therapist in cases of radicular paralysis of obstetric origin.

Presse Médicale, Paris

46: 1761-1776 (Nov. 30) 1938

*Arteriolar Spasm in Cardiac Insufficiency: Its Therapeutic Consequences. H. Warembourg, M. Linquette and J. Ravaut.—p. 1761.
Two Tests of Dehydration in Surgical Patients. J. Bottin.—p. 1763.

Arteriolar Spasm in Cardiac Insufficiency.—Warembourg and his associates point out that the heart and the peripheral circulation are so intimately related that failure of the one leads always to considerable disturbances in the function of the other. They studied the peripheral circulation of sixty-four patients with heart disease. On the basis of the roentgenologic and electrocardiographic studies the sixty-four patients could be grouped into three categories. The first group of eighteen patients presented no signs of cardiac decompensation. In the second group of twenty-nine patients are classed those with hyposystole presenting signs of ventricular insufficiency. Seventeen patients with complete asystole made up the third group. To explore the arteriocapillary circulation the authors subjected these groups of patients to three different tests: (1) to hot and cold baths of the forearms, (2) to intradermal histamine tests and (3) to intradermal tests with acetylcholine. On the basis of these studies on the peripheral circulation of patients with heart disease the authors conclude that arteriolar spasms frequently exist in decompensated cardiopathies. In the sphere of the capillary circulation this arteriolar hypertension is accompanied frequently by spasm or perhaps by dilatation. To counteract the arteriolar barrier and assist the cardiac function, the authors regard it advisable to employ, in addition to the classic cardiotonic therapy, vasodilative drugs, among which the papaverine extracts of opium appear to furnish the best results.

46: 1793-1816 (Dec. 7) 1938

Tuberculosis and Renascence of Medicine. J. Troisier.—p. 1793.
*Treatment of Extrasphincteral Anal Fistulas: Method of Elastic Ligature. P. Rochet and M. Violet.—p. 1798.

Treatment of Extrasphincteral Anal Fistulas.—Rochet and Violet call attention to the difficulties that are encountered in the treatment of anal fistulas, to the technical difficulties, to the frequency of relapses and to the risk of incontinence follow-

ing section of the anal sphincter in extrasphincteral fistulas. The frequency of relapses has led many surgeons to suspect that the tuberculous origin is responsible for this development toward chronicity. Whereas numerous authors maintain that anal fistulas are always tuberculous, other observers regard the tuberculous origin of anal fistulas as comparatively rare. In the second part of this report the authors describe the formation of an extrasphincteral anal fistula from a submucous abscess and show the necessity of finding a procedure which drains the fistula in its entire course and which sections the interposed tissues without lesion of the sphincter. Such a procedure was known in the time of Hippocrates under the term of "apolinosis." The elastic ligature, a modification of the ancient method, was first described in 1862. Its mode of action has been defined as follows: A rubber drain by its elastic quality effects a uniform and constant compression on the surrounding tissues and destroys, layer after layer, by progressive ulceration; it does not cut but ulcerates; it does not remove but destroys, flattening and obliterating the vessels before it divides them. The most interesting aspect of this slow and continuous section is the penetration of the anal sphincter; the latter is sectioned in its entire thickness, without there ever being a complete solution of the continuity. The intervention is made under spinal anesthesia. Anal dilation is usually superfluous, since the sphincteral relaxation caused by the spinal anesthesia is generally sufficient. The injection of a solution of methylene blue into the cutaneous orifice greatly facilitates the intervention, because it makes it possible to follow the fistulous passage and may even disclose a microscopic rectal perforation. It is necessary to excise the fistulous passage that is indicated by the methylene blue stain. The elastic ligature is put in place by introducing it through the cutaneous wound and letting it emerge again through the anal orifice. It consists of a rubber drain, 5 mm. in diameter. The intervention is terminated by placing a wick in the excised region. The authors accompany the description of the intervention by diagrams. Discussing the postoperative course, they say that the rubber drain falls out spontaneously between the fifth and the twelfth day. The time required for total cicatrization depends on the extent of the fistulous passage; it varies between twelve and forty days. The authors say that since 1935 they had occasion to treat twenty-six extrasphincteral fistulas. In more than half of the cases a previous operation had been followed by relapse. The authors did not have a single failure. All the reexamined patients were free from relapse of any kind. The condition of the anal sphincter was always excellent. The authors stress the simplicity of the method, which employs the elastic ligature, and recommend its use to those who regard the treatment of anal fistulas as a hopeless enterprise.

Sang, Paris

12: 913-1046 (No. 9) 1938

Comparative Tests of Immunity with Aid of Leukocytic Movements and of Agglutinins: Leukocytic Changes as Test of Immunity. G. Wallbach.—p. 913.
New Investigations on Technic of Sedimentation Speed of Erythrocytes. Edhem.—p. 924.
*Spleen and Lipoid Exchange. M. B. Rosemblum and B. A. Sapiro.—p. 944.
Influences of Solutions and Various Medicaments on Coagulability of Blood: Therapeutic Value of Medicaments Injected Intravenously. L. Blacher.—p. 956.
Syphilis and Reticulo-Endothelial System. A. Touraine.—p. 970.

Spleen and Lipoid Exchange.—Rosemblum and Sapiro state that the spleen is closely connected with a number of glands of internal secretion. After citing evidence of its connection with the thyroid and the genital glands, they show that the lipoid (cholesterol) exchange is largely dependent on the hormone of the spleen. They investigated the status of cholesteremia in various disorders with splenic involvement because they reasoned that, if the hormone of the spleen really influences cholesteremia, a study of the modifications of cholesteremia in diseases of the spleen might be helpful in finding a method for the functional diagnosis of these disorders. To determine the influence of the splenic hormone on cholesteremia in various disorders, they resorted to the intravenous injection of extract of hog spleen. Before this injection is made and while the patient is still fasting, a specimen of blood is withdrawn and these withdrawals are repeated at hourly intervals for five hours after the injection. The cholesterol content of the specimens is determined according to the method of Smirnova and of Engelhardt. The authors made this test on twenty-one patients. In summarizing their results they state that the injection of splenic extract provokes an increase in the cholesteremia. The evolution of myelosis and erythrosis is accompanied by a low cholesteremia curve and these patients do not react to the introduction of extract of hog spleen by an augmentation in cholesterol. However, after an efficient roentgen therapy of myelosis, extract of hog spleen produces an increase in cholesteremia. In diseases of the liver accompanied by grave impairment of the parenchyma the cholesteremia curve is low and it does not react to the administration of extract of hog spleen. The authors conclude that the increase of cholesteremia under the influence of splenic extract in healthy persons, and the absence of this phenomenon in splenomegalic disorders, raises the question whether in the future this method may not serve as a functional test for the liver.

Schweizerische medizinische Wochenschrift, Basel

68: 1289-1308 (Nov. 26) 1938

Clinical Aspects and Differential Diagnosis of Poliomyelitis. R. Weber and E. Schmid.—p. 1289.
Almost Total Closure of Vena Cava Inferior. W. Berblinger.—p. 1295.
After-Treatment of Arthrotomies and Internal Injuries of Joints, Particularly on Knee. R. Meyer-Wildisen.—p. 1297.
*Question of "Gonotoxic Icterus." M. Oppenheim and A. Fessler.—p. 1299.

"Gonotoxic Icterus."—Oppenheim and Fessler direct attention to a report by Popper and Wiedmann in which it was demonstrated that in recent years catarrhal icterus has been comparatively frequent in the course of gonorrhea. Popper and Wiedmann were of the opinion that there was a causal connection between impairment of the liver and gonorrhea, assuming that the icterus was produced by toxins of the gonococci and consequently designating this icterus as "gonotoxic icterus"; to be sure, they emphasize that another factor, such as an alimentary intoxication or vaccine therapy, is usually necessary for the manifestation of the hepatic impairment, but they regard as unlikely a harmful effect of acriflavine hydrochloride. Oppenheim and Fessler, on the other hand, deny that the icterus which develops in the course of gonorrhea is due to hepatic impairment by the toxins of the gonococcus. They are of the opinion that this icterus, if it cannot be traced to an alimentary intoxication, is the result of intolerance toward the mode of treatment (intravenous injection of acridine dyes, vaccine therapy or fever therapy with bacterial proteins). They base this opinion on the fact that the literature contains only few reports about icterus in gonorrhea; that they themselves never observed an appreciable number, although their annual material consists of from 700 to 800 cases, and that, even in cases of the severest septic complications of gonorrhea, icterus is rare. In contradistinction to Popper and Wiedmann, the authors are of the opinion that treatment with acriflavine hydrochloride is an important factor in the development of so-called gonotoxic icterus. That the incidence of this type of icterus has so greatly increased in recent years they ascribe to the fact that parenteral therapy has largely replaced the local treatment. They detected three cases of icterus that had been treated elsewhere either with acriflavine hydrochloride or with vaccine. They were not able to obtain information about the dosage, but they think that hepatic impairment develops without excessive doses, since hypersensitivity is involved.

Annali Italiani di Chirurgia, Bologna

17: 827-905 (Oct.) 1938

Different Tolerance of Bone to Metals Used in Osteosynthesis. R. Berti-Riboli.—p. 827.
Resistance and Sedimentation Speed of Erythrocytes, Time of Coagulation and Hemorrhage in Animals Subjected to Anesthesia with Warm and Cold Ether. J. Jacobellis.—p. 863.
*Local Anesthesia in Treatment of Traumatic Arthritis. G. Muzzarelli.—p. 881.

Traumatic Arthritis.—Muzzarelli reports satisfactory results from local periarticular anesthesia in the treatment of posttraumatic arthritis, especially of the knee and elbow joints. The treatment consists in administration of three or four injections

of from 5 to 10 cc. of a 1 per cent solution of procaine hydrochloride given in the periarticular space of the knee joint or in the epitrochlear, epicondylar and olecranal regions of the elbow with intervals of two weeks between injections. Immediately after the injection is made the patient complains of a tolerable transient local burning sensation. Movement, flexion and extension become immediately normal. The patients can go up and down stairs and walk with confidence. If there is an overlooked partial fracture the functional results are not the same as those obtained in simple traumatic arthritis, in which pain either disappears after the first injection or reappears greatly diminished in intensity one week after the injection and then disappears in the course of the treatment. The treatment is complemented by local application of heat and physical exercise by the patient. It is indicated in cases of articular trauma with slight internal or external lesions or after prolonged immobilization of a joint in fractures. It is valuable in detecting simulators. Five cases are reported, in all of which satisfactory results were obtained.

Folia Medica, Naples

24: 1225-1279 (Nov. 30) 1938. Partial Index

*Influence of Intravenous Epinephrine Therapy on Metabolism in Malaria. N. Bonarrigo.—p. 1229.

Experimental Reticulosarcoma from Thorotrast: Case. O. Onufrio.—p. 1245.

Influence of Epinephrine on Metabolism in Malaria.—In fourteen cases of chronic malaria with splenomegaly, Bonarrigo observed the behavior of the metabolism before and after making tolerance tests of dextrose and stearic acid, which he did before and after the administration of the intravenous epinephrine treatment for malaria. The tolerance tests were made after oral administration of either 30 Gm. of dextrose or 20 Gm. of stearic acid. The author found that the general metabolism is disturbed in malaria. The patients suffer, while fasting, from hypoglycemia (and in rare cases from hyperglycemia) and also from hyperketonuria regardless of the fact that they are fed on a diet rich in carbohydrates. There is a poor utilization of dextrose as shown by the crises of hypoglycemia late in the course of the dextrose tolerance test. There is also an abundant elimination of ketone bodies through the urine after the tolerance test of stearic acid. When the tests are repeated after completion of the epinephrine treatment the results show a better utilization of dextrose by the body and a diminished elimination of ketone bodies through the urine in comparison to that which takes place when the tests are performed before the administration of the epinephrine. According to the author the metabolic disturbances in malaria are due partly to malarial anatomopathologic lesions of the liver and partly to functional disturbances of the hypophysis by which the neurosympathetic equilibrium is ruptured with consequent disturbances of the correlations between endocrine glands, diminished secretion of insulin and lowering of the tonus of the spleen. Epinephrine, administered by the intravenous route, normalizes or greatly reduces the size of the spleen. The neurosympathetic disorder and the correlations of endocrine glands are controlled by the treatment by which the production of insulin increases, the spleen maintains a normal tonus and the general metabolism becomes normal. On completion of the treatment splenomegaly permanently disappeared and the crasis of the blood, elimination of ketone bodies through the urine and general condition of the patient were either normal or greatly improved. The results of the treatment are permanent.

Giornale di Batteriologia e Immunologia, Turin

21: 657-824 (Nov.) 1938. Partial Index

*Etiology of Influenzal Otitis. A. Pirodda.—p. 657.

Experimental Brucellosis in Guinea Pigs. U. Pagnini.—p. 681.

Experimental Virulence to Streptococci in Acute Tonsillitis. B. Giovanni.—p. 697.

Resistance of Granulation Tissue to Pyogenic Bacteria. A. De Vincentiis.—p. 741.

Influenzal Otitis.—Pirodda attempted to produce experimental influenza in ferrets by inoculating them with the pathologic material from the middle ear of four patients suffering from influenzal otitis. The otitis developed early in the course of influenza and was grave, hemorrhagic and with mastoidal complications in two cases. It developed during convalescence from influenza and was benign in two cases. In all cases the pathologic material was taken from the middle ear after paracentesis and disinfection of the auditory canal. With a portion of the material, cultures in blood agar were prepared, and another portion of the material was inoculated into ferrets. Haemophilus influenzae could not be isolated from the cultures. The ferrets did not develop influenza. The author therefore concludes that influenzal otitis is caused by the influenzal filtrable virus alone without interference of the influenzal bacillus. Experimental influenza develops from inoculation of pathologic material which contains both the filtrable virus and Haemophilus influenzae in synergy. It does not develop when the inoculated material contains either etiologic factor alone.

Archiv für klinische Chirurgie, Berlin

194: 1-170 (Nov. 7) 1938. Partial Index

*Brown Tumors and Bone Cysts. H. Puhl.—p. 1.

Microscopic Studies of Fractured Neck of Femur Which Has Been Operated on. F. Felsenreich.—p. 96.

Experimental Study of Effect of Contrast Medium (Roentgenologic) on Narcosis. N. Sugihara.—p. 135.

*Relationship of Cholelithiasis to Primary Cancer of the Gallbladder. W. F. Böttiger.—p. 146.

Brown Tumors and Bony Cysts.—According to Puhl, bony cysts are benign mesenchymal tumors with moderate tendency to growth and a poor blood supply. The latter fact explains the breaking down of its tissue and the rapid formation of cavities. The formation of capillaries bears an embryonal character and attempts to provide the blood supply for mesenchymal tissue, which may easily be confused with granulation tissue. If the process is inadequate, extensive breaking down of tissue leads to new formation of large cavernous spaces the walls of which are made up of mesenchyma of its more mature type. These observations contradict the concept of a hematoma or of granulation tissue as the underlying character of cystic formation. Giant cell tumor is a benign mesenchymal neoplasm with a greater tendency to growth and richer cellular structure. The nourishment of its mesenchymal tissue depends on the blood spaces, which are formed with the aid of greatly increased giant cells. In this manner the nutrition of the tumor is early provided for and breaking down of the mesenchyma takes place rarely. The angiocavernous blood spaces may likewise lead here to the formation of one or several cysts. Fibrous tissue, osteoid tissue and bone formation, as well as cartilaginous structures, belong to the typical maturation manifestations of the mesenchyma and are therefore to be regarded as neoplastic tissues. The same applies to the cavernous spaces and their so variably constructed walls, which have nothing in common with normal blood vessel walls. The author regards a central fibroma as a healed form of a genuine cyst. According to the same concept they represent, very much like certain chondromas, osteomas and angiomas, matured mesenchymal hematoma, with a slight tendency to growth. The possibility of a secondary malignant degeneration of a giant cell tumor has been definitely established. It is to be expected that other types of osteogenic sarcoma will be found even though the osteoid, chondroid and bony structures suggest a benign tumor. Many errors arise from the fact that a characteristic representative of a primary osteogenic sarcoma, described by Geschickter and Copeland as osteolytic, resembles closely, aside from its cellular polymorphism, the giant cell tumor. The author considers this type of sarcoma a representative of the malignant group of primary mesenchymal bony neoplasm. He considers it most likely that the other forms of osteogenic sarcoma develop from mesenchymal tissue. The formation of primary bony tumors is therefore regarded as a group of benign and malignant mesenchymal neoplasms arising on a dysontogenic basis. A relatively small group of neoplasms arising on the basis of regeneration are represented by tumors arising from a callus, the radium sarcoma and the Paget variety.

Cholelithiasis and Primary Cancer of Gallbladder.—According to Böttiger the etiologic role of gallstones in the causation of the primary cancer of the gallbladder is demonstrated by the striking preponderance of primary carcinoma of the gallbladder in women. Eighty per cent of primary gallbladder carcinoma is associated with stones, whereas metastatic

carcinoma of the bladder is associated in only 15 per cent with stones. The author demonstrates statistically that the relationship of secondary gallbladder carcinoma in men and women is the reverse of that which appears in primary carcinoma. It was possible experimentally to produce an adenocarcinoma through gallstones. The author believes that it is not the mechanical irritation of the concrements that acts as a direct cause of cancer formation in the gallbladder, but rather the chronic regenerative process accompanying it coinciding with the age during which the organism displays a general disposition to cancer formation.

Monatsschrift für Kinderheilkunde, Berlin

76: 163-304 (Nov. 17) 1938. Partial Index

Comparative Investigation on Treatment of Florid Rickets with Massive Doses of Vitamin D_2 and D_3. H.-J. Hartenstein.—p. 163.
Influence of Ultra Sound Waves on Vaccine Virus. M. Kasahara, M. Tatsumi, S. Ogata, K. Yoshio and H. Kanbayashi.—p. 179.
Bactericidal Power of Blood After Administration of Quinine. F. Horn and K. Schwartzer.—p. 182.
Acrocephalosyndactylia with Cutis Marmorata Telangiectatica Congenita. K. Schwartzer.—p. 193.
*Modification of Schick Reaction by Vitamin C. K. Schwartzer and L. Stockebrand.—p. 197.
Significance of Rice Water-like Stools in Acetonemic Vomiting. Irmgard Scharff.—p. 202.

Modification of Schick Reaction by Vitamin C.—According to Schwartzer and Stockebrand it is not definitely decided as yet whether the administration of adrenal cortex extract and ascorbic acid produces a decided change in the course of diphtheria. Although it is possible to protect guinea pigs against fatal doses of diphtheria toxin, the results obtained in human subjects are not convincing, for the modification of the toxic symptoms produced by the diphtheria toxin is only slight and it seems unjustified to designate ascorbic acid as true antitoxin. To be sure, it cannot be denied that vitamin C and adrenal cortex extract have a certain significance for the defense against infections. In every infectious disease a vitamin C deficit develops and counteracting this deficit has a favorable effect on the course of the disease. In order to determine to what extent variations in the vitamin C content of the organism play a part in the changing susceptibility to diphtheria, the authors made Schick tests and studied the vitamin C elimination in the urine of twenty-five children, some of whom were healthy and some were convalescents from tuberculosis and scarlet fever. A table indicates that twenty-one children had a positive and four a negative Schick reaction. The latter four did not show an especially high vitamin C elimination in the urine. The twenty-one children with the positive Schick reaction were subjected to oral treatment with vitamin C and then a second Schick test was made. It was found that the administration of vitamin C did not effect a weakening in the Schick reaction; however, the susceptibility toward the nonspecific protein component of the diphtheria toxin was noticeably reduced.

Strahlentherapie, Berlin

63: 403-560 (Nov. 26) 1938. Partial Index

Significance of Discovery of Radium and of Radioactive Substances for Treatment of Uterine Carcinoma. A. Döderlein.—p. 403.
Thirty Years' Experiences with Therapy of Uterine Carcinoma. A. Mayer.—p. 407.
Results of Treatment in Malignant Ovarian Tumors. F. Crainz.—p. 434.
Could Radium Bomb Be Used Intravaginally for Treatment of Uterine Cancers and Could Distribution of Rays Be Essentially Improved Thereby? R. du Mesnil de Rochemont.—p. 465.
*Radium Therapy of Hemangiomas. W. Baensch.—p. 496.
Technic of Production of Neutrons and of Artificial Radioactivity. A. Bouwers.—p. 545.
Animal Experiments on Distribution of Injected Soluble Radium in Various Tissues of Body. F. Daels, H. Fajerman, van de Putte and Van Hove.—p. 545.

Radium Therapy of Hemangiomas.—Baensch discusses the histologic structure of hemangiomas, pointing out that the structure determines the selection of the technic of the radium therapy. Describing the histologic aspects of simple or plexiform angioma, he shows that especially during the first months of life these hemangiomas spread rapidly. Growths which at birth are the size of a lentil may extend over an area four or five times as large at the end of two months. Another form, the cavernous angiomas, go much deeper than does the simple type and they appear chiefly in the region of the skull, more especially in the so-called embryonal clefts; that is, on the inner canthus, the upper lip and below the ear. It is important to know that such cavernous hemangiomas are generally not limited to the visible and palpable surfaces but may extend through the bone clefts to the deeper layers and even into the cranium. The third type of vascular tumor discussed by the author is the angioplastic sarcoma. In contradistinction to the first two types, which are always benign, this form may become malignant. The author mentions three methods of radium therapy. The first one, the application of pastes that contain radon, is suited only for simple, superficial angiomas. Moreover, it has the disadvantage that it requires much time. The second form of treatment, which employs the moulage method, likewise requires considerable time. The author employed a more rapid method, the introduction of radium into the tissues by means of needles. The needles contain 1, 2 or 4 mg. of radium, and filtration is effected by means of platinum-iridium. In nurslings (of the fifth month) the author introduces the needles under a short ethyl chloride rausch; in older children or adults, under local anesthesia. The size of the needles is adapted to the extent of the hemangioma, and the needles are distributed in such a manner that about 1 mg. is introduced per cubic centimeter. The sites of insertion are selected so as to insure favorable cosmetic results; for instance, in the region of the lips and cheeks, the needles are introduced by way of the oral mucosa. In case of large angiomas the radium puncture can be combined with the moulage method. After the first radium puncture of two days' duration the patient is discharged, for the irradiation is repeated only after at least two or three months has elapsed. It has been observed that during this time the retrogressive process continues. In order to avoid disappointment, attention should be called to the slowness of the process. The author employed this method with good results in 230 cases. In 2 per cent of the cases superficial necroses developed, but these healed with smooth scars. Injurious effects of the rays were not observed. Follow-up examinations, extending over six or seven years, never disclosed damage to adjoining organs such as the eyes or the bones. The author gives brief histories of several cases and reproduces photographs illustrating the good results.

Zeitschrift f. d. ges. experimentelle Medizin, Berlin

104: 465-628 (Nov. 10) 1938. Partial Index

Gastritis in Circulatory Decompensation: Animal Experiments. M. Gülzow and T. C. Afendulis.—p. 465.
Investigations on Action of Vitamin B_1 on Carbohydrate Metabolism. I. Magyar.—p. 495.
Basal Metabolism Tests on Specific Dynamic Action of Pyroracemic Acid. H. W. Hering.—p. 504.
*Action on Metabolism of Coffee With and Without Caffeine. H. Steudel.—p. 542.
Depth Action of Heat in Partial Baths. R. Gruner.—p. 554.
Modification of Frequency of Frog Heart by Short Electric Waves. E. Hasché and J. Bolze.—p. 596.
Question of Spontaneous Diuresis. U. Schaare.—p. 611.

Action on Metabolism of Coffee With and Without Caffeine.—After calling attention to the growing consumption of coffee, from which the caffeine has been extracted, Steudel admits that the pharmacologic effects of caffeine and the fact that they are frequently undesirable cannot be denied. However, the experiments which were carried out to demonstrate the actions of caffeine were often made with large quantities of caffeine that are never consumed under ordinary conditions. The author studied the behavior of ordinary coffee and of caffeine-free coffee in artificial digestion and then he made experiments on dogs. The artificial digestion experiments proved that coffee, when used in normal quantities, does not disturb the digestive processes. These experiments disclosed no differences between coffee which contained caffeine and the coffee from which the caffeine had been extracted. When coffee was given to dogs in physiologic quantities it was found that the elimination of nitrogen in the urine was reduced, irrespective of whether the coffee infusion had been made with ordinary coffee or with coffee from which the caffeine had been extracted. When the coffee was left out of the diet, the elimination of nitrogen in the urine increased again. The quantity of nitrogen, by which the urinary secretion is reduced, does not appear in the feces. In what form the nitrogen is retained in the organism during the time of the administration of the coffee the author

is unable to state with certainty. He says that during the fifty-nine days when the animals were given coffee they lost some weight. Nevertheless it must be concluded that coffee contains substances which act on the nitrogen exchange by effecting retention. That this effect is due to a specific action of the coffee is proved by the fact that when substitutes in the form of infusions of roasted, malted grains were used there was no change in the elimination of nitrogen in the urine.

Klinicheskaya Meditsina, Moscow

16: 1275-1484 (No. 10) 1938. Partial Index

Therapeutic and Surgical Types of Pulmonary Abscess. B. E. Linberg. —p. 1275.
Biochemical Characteristics of Basic Constitutional Types. M. N. Chernorutskiy.—p. 1300.
Present Concept of Shock. P. M. Staroshklovskaya.—p. 1311.
Thrombosis in Cardiovascular Patients. M. B. Burgsdorf.—p. 1321.
Etiology of Obliterating Endarteritis and Spontaneous Gangrene. D. I. Panchenko.—p. 1328.
Topical Diagnosis of Cardiac Infarcts. P. E. Lukomskiy.—p. 1334.
*Basal Metabolism in Hypertonia. E. Ya. Reznitskaya and P. Ya. Spivak. —p. 1410.

Basal Metabolism in Hypertonia.—On the basis of their studies of basal metabolism in 620 cases of hypertension, Reznitskaya and Spivak conclude that no relationship exists between the height of maximal pressure and the height of basal metabolism. The gravity of the clinical manifestations of hypertensive disease does not necessarily depend on the height of the maximal pressure. They found that basal metabolism in cases of compensation and of mild decompensation is normal or near normal, even in the presence of severe hypertension. The thyrogenous form of hypertension, however, is accompanied as a rule by increased basal metabolism. Insignificant alterations in the basal metabolic rate were present in hypophysial types, such as Cushing's disease, in obesity and in hypertonias of genital origin. Basal metabolic rate was normal in hypertension of pancreatic origin (accompanying mild types of diabetes). In fourteen cases of hypertension of the arteriosclerotic type nine showed normal metabolic rates and five insignificant deviations from the normal. In a group of twelve patients with nephritic hypertension, four had a considerable increase in the basal metabolic rate while eight had a rate close to normal. The authors conclude that determinations of the basal metabolic rate do not aid in the differential diagnosis of the type of hypertension.

Nederlandsch Tijdschrift v. Geneeskunde, Amsterdam

82: 5365-5464 (Nov. 5) 1938. Partial Index

Clinical Manifestations of Tumors on Base of Skull. P. M. van Wulfften Palthe.—p. 5366.
Syndrome of Löffler: Transient Pulmonary Shadows and Eosinophilia. H. J. Viersma.—p. 5372.
*Observations on Actinomycosis. H. Ensing.—p. 5381.
Arrest of Hemorrhage from Hand, Forearm or Upper Arm by Injured Person Himself and by Others. W. R. H. Kranenburg and Ö. Bánki. —p. 5390.

Actinomycosis.—Ensing surveys seventy-nine cases of actinomycosis which were treated at the surgical clinic in Groningen in the course of the last thirty years. There were forty-six cases with localization in the region of the neck and jaw, thirty-one cases with abdominal localization and two cases with thoracic and pulmonary localization. Follow-up examinations were possible in most cases and these disclosed that in actinomycosis of the neck and jaw there were 88 per cent of recoveries and in abdominal lesions 28.5 per cent of cures. After discussing the role of occupation in the development of actinomycosis the author takes up the port of entry, the diagnosis and the treatment and cites noteworthy case reports. About the treatment he says that the superficial processes often react favorably to roentgen irradiations. Extensive surgery is now largely dispensed with, particularly in cases of actinomycosis of the neck and jaw, the more so since the cosmetic results are usually not good. Even in abdominal actinomycosis the results of surgical treatment are not satisfactory. The author thinks that roentgen irradiation combined with moderate surgical treatment is the best method. These measures can be sustained by potassium iodide given orally, by fuadin injections and blood transfusions. In appropriate cases the gold-vaccine treatment of Neuber can be considered.

Acta Obstet. et Gynec. Scandinavica, Stockholm

18: 359-498 (No. 4) 1938. Partial Index

*Treatment of Diffuse Postabortal Peritonitis. F. Holtz.—p. 367.
Bilateral Extra-Uterine Pregnancies. T. Olovson.—p. 380.
Diabetic Parturient Woman Treated Without Diet. M. Renvall.—p. 412.
Differences Between "Radiologic" and "Anatomic Measurements" in Determining Size of Fetal Skull Roentgenologically. C. Wegelius.—p. 428.
Aneurysms in Renal, Lienal and Hepatic Arteries: Three Cases of Rupture After Pregnancy. K. Östling.—p. 444.
Treatment of Uterine Atony in Labor by Means of Scalp Forceps. P. Kühnel.—p. 466.
Pyelonephritis in Pregnancy Caused by Bacillus Pyocyaneus: Case. G. Thorsén.—p. 490.

Diffuse Postabortal Peritonitis.—In attempting to establish the principles of the treatment of diffuse postabortal peritonitis, Holtz collected a material of 176 cases, 100 of which had been treated by laparotomy and drainage. A comparison between this surgical method and the radical operation shows that the first method is to be preferred, because the general condition is frequently so poor that the patient will not tolerate a more complicated intervention and also because functionally important organs are thus saved. To be sure, the results that have been obtained with this method, so far, are not encouraging; only twenty of 100 patients have survived. This is chiefly due to the fact that the operation was performed too late; in order to improve the results it is necessary to intervene at an early stage. Consequently an operation is indicated not only in the presence of clear signs of diffuse peritonitis but also when there are symptoms which indicate that the infection is spreading to the abdomen, particularly when they increase rather than subside or when the general condition is impaired to such an extent that a severe infection must be suspected.

Ugeskrift for Læger, Copenhagen

100: 1273-1294 (Nov. 10) 1938

*Action of Streptamide on Leukocytes. E. Bruun.—p. 1273.

Action of Sulfanilamide on Leukocytes.—Bruun concludes that in addition to the toxic effects of sulfanilamide preparations previously described there is undoubtedly an action on the white blood picture with depression of the leukocyte count electively affecting the granulocytes. It may be rapid and intensive, as a rule disappears at once when the preparation is discontinued, seems to be without fatal results and is assumed to be due to a toxic destructive action on the leukocytes in the peripheral blood. The acute lethal agranulocytosis observed in rare cases after the administration of large amounts of sulfanilamide (from 40 to 60 Gm.) and dosage for over three weeks, is accompanied by marked changes in the bone marrow; it may depend on ordinary overdosage of the substance or perhaps on an idiosyncrasy. The author reports twenty-three cases of scarlet fever, seventeen of which were treated with from 1 to 3.6 Gm. of sulfanilamide daily for not more than five days; of these thirteen (85 per cent) showed a reduction in the granulocyte count. The course in scarlet fever was apparently not influenced by the treatment; there was usually a lytic fall in temperature and the duration of the fever did not differ in the patients treated with sulfanilamide and those treated without sulfanilamide.

100: 1295-1316 (Nov. 17) 1938

Posttraumatic Arteriospasms: Objectvie Establishment of Circulatory Disturbances and Impairment of Power Reflectorily Caused by Cold. S. Ulrich.—p. 1295.
*Preventive Therapy with Erythrol Tetranitrate in Angina Pectoris. N. Bay.—p. 1300.
Porphyrinuria. O. Kirstein.—p. 1303.
Eight Cases of Congenital Syphilis in Siblings. A. E. Larsen.—p. 1305.
Two Cases of After-Shock in Metrazol Shock Treatment. E. B. Johansen.—p. 1307.

Erythrol Tetranitrate in Angina Pectoris.—Bay reports that in ten of eleven patients, aged from 66 to 82, with angina pectoris the attacks ceased during treatment with from 7.5 to 15 Gm. of erythrol tetranitrate three or four times daily, while in one patient, with a positive Wassermann reaction and an aortic aneurysm, who had had two attacks daily, only one attack every third week occurred during this treatment. No by-effects of the treatment were seen.

THE STUDENT SECTION

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Speech Defects in Relation to Physical Condition and Health

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For many years physicians as well as those who specialize in speech correction have been conscious of the somatic aspects of speech defects. Often physicians undertake to treat such disorders on the assumption that the establishment of normal health per se will result in the acquisition of normal speech. Conversely, there are speech correctionists who attack this problem with complete lack of understanding that there may be organic pathologic changes which cannot be corrected through the efforts of the speech therapist alone. Qualified practitioners in both fields, however, are aware that either or both of these factors may be the root of the trouble. Both physical and mental health are essential for proper speech; and in those who have speech defects reeducation of the speech processes after anatomic defects have been corrected is the only sound procedure.

Effective therapy cannot be accomplished until accurate information concerning the patient's somatic condition is available. The Student Health Service and the School of Speech at Syracuse University have therefore combined facilities in an attempt to diagnose each student's actual difficulty. Only after such a procedure can correct treatment be instituted to provide the student handicapped by a speech defect with the best possible chance for improvement or cure.

The Student Health Service is adequately equipped for a complete diagnostic survey of each individual. Audiometric examinations and otolaryngologic studies are made as a routine on all students known to have defects of either speech or hearing. The resident in otolaryngology at the University Hospital makes these examinations, so that physical examination of the vocal tract and ears as well as hearing tests are made by a qualified physician.[1] In addition to this, records in the Student Health Office contain all the necessary information concerning each student's health and general physical condition. These records are of course available during the diagnostic survey and are useful in connection with the consideration of therapy.

Cases of early involvement observed during this study were called to our attention primarily by obvious difficulties in speech. A small number of persons with spasticity were discovered during the routine physical examination made at entrance. These were referred to the speech department for corrective attention. The speech department also picked out from its classes persons with dyslalia and referred them to the health service for examination. Though it is too early to give any detailed report of the examinations, some data have already accumulated which are interesting if not yet significant. One student insisted that he was "not very deaf" but showed more than 80 per cent loss in each ear. On the other hand a student who had been receiving corrective treatment over a period of three years for dyslalia and who constantly insisted that he had a great deal of difficulty in hearing teachers in class was found to have a hearing loss of only 12 per cent in one ear and of 15 per cent in the other.

Students with dysphonia are given a complete otolaryngologic diagnostic survey. Hearing tests are also performed in the routine manner. If the vocal defect is found to lack an anatomic basis it is considered as being of functional origin. In cases of functional dysphonia it is necessary only to apply an appropriate reeducational technic to remedy the difficulty. However, in cases of hysterical dysphonia psychiatric treatment is clearly indicated. When there is a definite pathologic basis for the dysphonia, anatomic correction may be necessary. Collateral reeducational therapy may or may not be indicated. When such therapy is indicated, the specialist in speech proceeds toward this under the immediate direction of the otolaryngologist.

To extend the effectiveness of this cooperative project the general health examination of this semester's entering class included complete

From the School of Speech and the Student Health Service, Syracuse University.

1. In some speech clinics examination of the larynx, nose and ears is made by a specialist in speech, who may not be a qualified physician.

audiometric determinations and speech tests. The problems and defects disclosed by these tests are enabling the university to take the initiative in bringing to the attention of students thus handicapped the facilities for diagnostic and corrective measures within the Student Health Service and the Department of Speech. The diagnostic surveys by the otolaryngologist are still being conducted. Any surgical treatment found indicated continues to be referred as in the past to qualified physicians in the appropriate fields.

Comments and Reviews

THE ART OF DIAGNOSIS

Abridgment of a lecture by Frank Cook, Esq., F.R.C.S., published in Guy's Hospital Gazette, Oct. 22, 1938.

Since it falls to my lot to examine a large number of candidates in their finals, I wish to refer particularly to the clinical examinations to which I assure you considerable importance is attached. The average candidate, having examined the patient, starts off in this manner: "The patient's age is 25, she had measles as a child, she has not had scarlet fever, she has six teeth missing, her tonsils were removed at the age of 10, her last menstrual period was October 19," and so on. He fondly believes there is one answer and one answer only to the clinical problem before him. Therein lies a paradox: the more discursive the medical man of today, the more does he hope to find a brief and comprehensive label in the end. As if any one could sum up in words that infinitely complex organism a human being affected by pathologic processes, and place the whole in a nutshell. This is the main point of my discourse, but let us return to the candidate. To him I say "You are conscientious; your teachers have taught you to be methodical and observant, and I am sure you were an excellent ward clerk; but on the morrow you may be a doctor, so will you kindly discard the irrelevant observations, bring out your main points and display a little inductive reasoning by putting two and two together." Often he then says "I should like to have an x-ray examination, a blood count, a test meal, a bacteriologic investigation of the urine," and so on. That man is likely to remain a ward clerk throughout his life; the medical profession is full of such. Is it altogether his fault, or is it the fault of his teachers and examiners?

Every one knows that the examination system is defective. I wish that the whole stultifying outfit could be abolished. You will reply that examiners require a definite answer to each of their questions and that they expect each of the problems presented to you to be solved in a nutshell. They require nothing of the kind; there is nothing definite in medicine, which is not an exact science; diagnosis is inevitably a matter of probabilities and therein lies its fascination. It is true that a few examiners while masquerading as physicians are blessed or cursed with the mentality of schoolmasters, but the majority are well aware that our profession is called on to deal with the intangible complexities of human nature; they are out to discover how much you know rather than the gaps in your knowledge; above all they require evidence of a well trained mind and your ability to deal with a clinical situation.

ESSENTIALS IN DIAGNOSIS

There are two great essentials in diagnosis—a sense of relative values and that inductive reasoning which threatens to become a lost art in medicine. We must never overlook the immeasurable importance of these essentials; otherwise we shall always miss the wood for the trees. Here is a great danger for which I am inclined to blame the system of piecemeal investigation imported from America and Germany under the blessed name of clinical research. I am not belittling genuine research. I am all for genuine thoroughness and accuracy of observation. But it should be obvious that many of those endless series of irrelevant and uninspired "clinical investigations" with which our laboratories and special departments are inundated indicate (*a*) that some one contemplates writing a paper or (*b*) that some one is hiding his lack of wits or courage under a cloak of pseudoscientific enterprise. I venture the opinion that 80 per cent of the work performed by the clinical laboratories and x-ray departments of today is more or less unnecessary, although it is conducted under the noble guise of team work. There is a worse feature than this: thousands of patients are continually becoming hospitalized. The saddest feature is that a new generation of medical men is being embarked with but the scantiest notion of diagnostic values. I cannot see the point in hospital practice where added burdens are imposed on all concerned without financial reward. Nor do I understand why our investigators fail to go the whole hog while they are at it; why not have every available body fluid examined with reference to every chemical constituent and micro-organism known to science? Why stop at hydrochloric acid and the Wassermann reaction?

Closely associated is the departmental danger. Patients today are fortunate if they happen to make first contact with the profession by consulting a really good clinician. Otherwise they are likely to gravitate toward a department or an enthusiastic specialist. Take for example the case of a neurasthenic female who is below par and likely to remain so unless some philanthropist endows her with £500 per annum free of income tax. She displays a multiplicity of symptoms and it is a matter of luck as to which department she reaches. If she goes to one, she will have a test meal, x-ray examinations and so on; if she goes to another she will have a cystoscopy; yet another will oblige her with a rectal examination and possibly sigmoidoscopy, or they might remove her appendix. If she comes to us, we are supposed to conduct a vaginal examination. I might tell her that she is tired out or advise her to take the air in the park. But she would think me a fool and I should be exposed to the criticism from medical onlookers of being frivolous and lacking in professional conscience. So one merely returns a negative diagnosis and makes an attempt to steer her clear of other departments. The onus is not on us but on the man who sent her to us, but we try to be human. You may gather that I assume the majority of patients nowadays to be psychoneurotic. That is true; they are, but beware of the underlying danger. Every neurotic must die of something some day, and it is at least debatable whether it is better to let one neurotic die undiagnosed than to diagnose and treat nonexistent organic conditions in the ninety-and-nine. The real difficulty arises when psychoneuroses and organic pathologic lesions coincide in the same individual; that demands clinical acumen.

IMPRESSIVE WORDS

On many occasions I have held forth on the danger of seeking an all embracing label to describe a complex clinical condition. For example, is it conceivable that any well informed individual would attempt to summarize in a word or sentence the infinitely complicated processes involved in normal menstruation, much less the abnormal? And yet we are assailed on every hand by a public which demands a simple nominal solution. Doctors and dressers say "Well, what is the answer?" Patients and their relations say "We insist on getting to the bottom of this; what is the cause?" Poor ignorant souls, they are very trying and often infuriating. What can their conception of a primum mobile be? I wish we could give them the answer they require—it seems far more important to them than treatment; but most of us have a streak of honesty which prevents our inventing an impressive word to meet the occasion. Do it if you wish; tell them that they have the colitis, the acid, the anemia or the glands; but that way lies quackery. Leave it to the venders of "patent medicines" and to the appendicectomists; if we would save our professional souls we must keep the party clean. Some one must hold the fort of truth in a world that is hysterical, confused and seeking miracles. It is even better to say "I do not know."

THE SUPREME ARTIST

The supreme artist in clinical diagnosis regards the patient, not the disease, as an entity. He takes into account every relevant feature, general and local: physical, psychologic and environmental. He assesses the relative importance of these features and forms a mental picture or conception of the whole. This picture he can convey to others without any long rigmarole provided those others are intelligent clinicians rather than superannuated ward clerks. The great essentials are a sense of proportion, born of extensive experience or imagination, and a capacity to reason by induction. Generally a surgeon tends to be too quick in forming a judgment, since he is so frequently called on to be quick in action. A physician tends to be too slow and he often fails to reach a conclusion of any practical value. It has been part of my theme that conclusions are not always attainable in medicine.

In obtaining a clinical history, bear in mind that few patients are capable of making a plain statement of fact. Their observations are colored by their own interpretations, by what the other doctor said or by fortuitously coincident phenomena.

We have been taught to avoid any diagnosis that involves a "double pathology." This is bad and dangerous teaching. Do not be afraid to diagnose two, three or even twenty more or less independent pathologic conditions in one and the same individual.

Beware of the fixed idea in patients and colleagues alike. It is regrettable that some of the most eminent members of our profession are obsessed with fixed ideas which nothing will persuade them to discard. This implies that at some period of their career they have crammed up and pigeonholed some comprehensive subject, possibly with a thesis in view. These men are often excellent teachers—at any rate they are dogmatic but they have sacrificed one of our greatest diagnostic gifts, the open mind.

It is always helpful to see the patient's husband or wife. You may learn more from a brief acquaintance with him or her than you will from a whole series of investigations.

Diagnosis by elimination is a feeble mental process which is all too prevalent. I suppose we must blame in part that oft repeated question "Give the differential diagnosis." If a

woman has a pain in the right lower quadrant, and you have satisfied yourself that she is not suffering from appendicitis do not send her along to us labeled "salpingitis" when there is not a single feature in her history or physical condition to suggest that diagnosis. Call it a pain in the right side of unknown origin; salpingitis is a definite entity.

Diagnosis is largely a matter of probabilities. Keep your eyes open to every possibility but never despise the obvious.

IMPORTANCE OF CONCENTRATION

Finally, let me impress on you the supreme importance of concentration. We live in the midst of distractions of every kind; it is difficult to keep our heads clear. But when a patient consults you, that patient for the time being is entitled to the full use of every ounce of your gray matter whether you spend two minutes or two hours in making your diagnosis. Never mind the woman you delivered last night, the operations you performed yesterday or those you are going to perform tomorrow; never mind the patient you have just seen; never mind the telephone. In the practice of medicine you can do only one job at a time whether you are quick or slow. If the rest of the world seems to be pestering you with all its troubles, turn to it a blind eye and a deaf ear whenever you are applying your faculties to the art of diagnosis.

THE TRAINING OF SPECIALISTS IN OBSTETRICS AND GYNECOLOGY

Abridgment of address by Dr. N. Sproat Heaney, Chicago, published in the American Journal of Obstetrics and Gynecology, November 1938.

It may not be amiss for the president of the American Gynecological Society to express a few thoughts relative to the training of specialists in obstetrics and gynecology. From the large number of applications for residencies received everywhere it is apparent that great care must be taken if sufficient suitable positions are to be supplied. There are many hospitals which accept interns for their fifth year's work where the practice of the hospital is so specialized or the rotation of the internship is so restricted that the intern does not get a good general training. Six months' service in internal medicine and six months in general surgery are commonly accepted as a substitute for the required internship. This would not seem comprehensive enough for entering general practice in which so much of the practitioner's work has to do with obstetrics and the care of sick children, nor is it a sufficiently broad experience to use as the base on which to build a training in some specialty. Furthermore, when the service in internal medicine may be limited to metabolic diseases and the surgical experience may be largely limited to abdominal work, the training the intern receives lacks much of what should be expected. It may be possible for an intern to get a better training on a rotating service in a less famous hospital in which the work is more general and less highly specialized. When the work offered an intern by any hospital is not general enough, the medical colleges should remove such an institution from their lists of hospitals approved for internship.

Special hospitals and teaching hospitals become available at once for the training of specialists by replacement of the fifth year internships with special internships and residencies. We are looking for methods of measurement to determine goals of achievement and are confronted by the fact that our measuring stick must be flexible instead of rigid. There is no inflexible standard for measuring professional ability. Self made men may excel the products of long training, yet training is generally requisite for competence and a minimum standard seems advisable. The length of residency in an institution required for certification would vary with the opportunities offered but should not be longer than three years. To remain too long in one institution is a real danger for a young man. It is too likely to fix his ideas and limit his development. Too long a period of training in one institution produces the man anxious to tell of his institution's methods of treatment instead of the eager seeker after new methods for his own improvement. This residency period should be broad in its experience and active to the extreme. Contemplation does not develop diagnostic acumen, nor philosophic discussion surgical technic. Clinical material should be abundant and responsibility for its management developed. Thorough training in the anatomy and pathology of the specialty is of prime importance. Though a man expects to be an obstetrician he should during these years have enough training in gynecology so that he may be a safe operator in obstetrics when the occasion arises. Now that services in obstetrics and gynecology are commonly combined he should prepare himself for that possible contingency in his future and have a good basic training in gynecology. So should the aspirant in gynecology have, during these hospital years, a good training in obstetrics. The stamp of the obstetrician is seen in the character of every gynecologist's work who has been trained in both branches.

SEEK ANOTHER CONNECTION

After three years, sometimes sooner, he should leave the hospital of his special training and seek some other connection. Nothing is so illuminating as a change of chiefs. The next year he might well spend in travel and in taking

special courses to make up the deficiencies in his training. In one center he would find much to stimulate him in investigation, in another he would find an entirely new attitude toward clinical problems which had been satisfactorily settled as far as his previous training had led him to believe. An impressive teacher may so imbue a student with his beliefs and methods that the student feels no urge to seek further fields for truth, and inbreeding results. There seems something innate in the active surgical teacher which gives the impression that all truth rests in him. It might not be advisable to disabuse the minds of patients, nurses and secretaries regarding the fallacy of this created opinion, but we really owe it to our own assistants to rob them of this delusion, so that they in turn may not be bound by our own limitations. Many of us in charge of large clinics have discarded every operative procedure which we once employed and have established new technic, based on ideas picked up here and there while visiting elsewhere.

RESEARCH WORK

Or this fourth year might be spent in a research laboratory. There is a move on foot to require research work of every candidate for specialization. This is laudable if practicable. Progress in medicine can be expected only through investigation. The man with a research type of mind can best evaluate the clinical application of new discoveries, but shall we require this as a necessary qualification for licensure? What constitutes research work in gynecology and obstetrics? In our specialty much acclaim is given the one who works in physiology, chemistry or physics. Formerly reputations were established by research into the morphology of tissues. Not much credit is given to the student of histology today as being engaged in research work, yet the studies of Sampson on endometriosis has had far more effect on the practice of gynecology than any other single bit of research done during the same period in obstetrics and gynecology, whether test tube and guinea pig were used or not. So, before research is required, research must be defined. A great deal of self deception exists as to the real value of the research work we engage in. In his fourth year a young specialist should be full of problems demanding solution if he has a research mind, and a year under a recognized investigator will teach him exact methods. Research work must not be a fetish and should be an addition to adequate clinical and technical training. It should not be considered a substitute.

After the third hospital year, the aspirant may be taken into a specialist's office as an assistant for further training. This is not only helpful to the chief but can be made of the greatest value in the training of younger men. In the hospital the resident has seen chiefly the seriously sick, or at least those requiring hospitalization. In an office or dispensary practice he sees, in addition, the beginnings of disease and finds that many applicants for medical relief need only the assurance that nothing ails them to obtain that relief.

ACCEPTING ASSISTANTS IN OFFICE

Years ago I became aware that if I were to train teachers for my staff at the college and hospital I would have to do it through accepting assistants in my office, for the teaching and clinical beds were too few to train the men in a reasonable time. I remodeled my office so that a large number of patients could be attended. Fixed fees were abandoned and all who wished attention were made welcome. As largely as possible the active care of patients was turned over to assistants and my attention was given to the supervision of their work and the treatment of the most exacting or complicated cases. Obstetric and gynecologic cases were handled alike and the fees of the poor and of persons with limited means were largely a matter of their own decision. The rich came along with the poor, were charged abundantly, and were happy in most instances to pay the fees exacted, because they had before them the visible reasons for variations in fees. Assistants were taken on for a period of three years. In order that the assistants' activities could be controlled and their time best occupied for their own advancement, flat salaries were paid for the disposition of all their time and efforts, and the salaries were increased for each year of service. The salaries were sufficiently ample so that at the end of three years the assistant could pay for a year's study abroad. When this calculation failed I lent them enough money to make up the deficiency. After returning from his foreign training the assistant goes into private practice on his own responsibility. He is allowed to notify such of my clientele as were earlier turned over to him for his attention that he is in practice for himself and he is given a position on the staff of the hospital and on the teaching staff of the medical college. Each of these graduates from my office is assured of a private practice in his specialty out of my own clientele, but this pruning has never injured the parent practice. In this way one may make up the deficiencies of insufficient institutional positions both to the progress of obstetrics and gynecology and to one's own satisfaction.

Surgery is an art; dexterity and proficiency in it come only through much training and hard application, and for the acquisition of this art there can be no substitute for a large experience.

We deal in human lives. Quick judgment may be based on temperament but its chief support is experience. Operative dexterity is an asset best appreciated when dealing with the poor operative risk. Many people die from operations who might live were the operator a little more skilful, a little more experienced. Why do we try to substitute something else for this indispensable attainment? In the last analysis examinations for licensure have not as yet been devised which will indicate a candidate's real ability.

STUDENT WILLIAM BEAUMONT

Dr. William Beaumont, the pioneer American physiologist, accomplished under discouraging circumstances some of the most remarkable medical research of all time.[1] Born on a farm in Connecticut in 1785, Beaumont grew up in a puritanical atmosphere. With no particular destination in mind, he left home when 21 and drove northward in a sleigh, arriving in the spring at the village of Champlain, New York, where he taught school for three years and tended store. Here Beaumont manifested great interest in national affairs. He wrote his father that he planned to enter the army in case of war, which seemed near. On his way to Champlain he had met Dr. John Pomeroy of Burlington, a practitioner who later taught anatomy in the University of Vermont, and from him probably received the urge to study medicine. Having saved enough money to see him through the two years of medical appenticeship, Beaumont crossed the lake to St. Albans and became an apprentice to Dr. Benjamin Chandler, an excellent teacher. At this stage in his career the qualities which were to make him famous were already evident. Every case history was an example of precision. His attitude during the apprenticeship is disclosed in a letter to his parents: "My situation affords a pleasant life, though it requires my utmost diligence and perseverance in the pursuit of a medical profession in which . . . I hope to exhibit specimens of proficiency in an art which, in this enlightened age of reason and under the modern improvements of chemistry and physiology, bids fair to rise with healing on her wings. I am considerably in the habit of riding with my preceptor and have charge of many of his patients during his calls elsewhere, which are numerous and at a distance. He has just returned from a distant patient . . . and is now gone twenty or thirty miles to perform an amputation."

Beaumont was licensed to practice in June 1812. Still intensely interested in his country's affairs, he went to Plattsburgh to enter the army and promptly became most deeply engaged in the War of 1812. In his well kept diaries he wrote of the battle of Fort George: The British "devised the inhuman project of blowing up their Magazine (containing 300 Bbls. powder), the explosion of which, shocking to mention, had almost totally destroyed our Army. Above 300 were wounded, and about sixty killed dead on the spot by stones of all dimensions falling like a shower of hail in the midst of our ranks. . . . A most distressing scene ensues in the Hospital — nothing but the Groans of the wounded and agonies of the Dying are to be heard. The Surgeons wading in blood, cutting off arms, legs and trephanning heads to rescue their fellow creatures from untimely deaths." . . .

Beaumont resigned in 1815 and entered private practice at Plattsburgh. The minutes of the Clinton County Medical Society, which he joined in 1819, show that Beaumont was an active member. Although busy in private practice, Beaumont reentered the army in 1820. He was ordered to report at Fort Mackinac, Michigan. The journey from Plattsburgh through the canals, over the lakes and by stage, he vividly describes in a diary. Arriving at Mackinac, he took charge of the small army hospital.

ALEXIS ST. MARTIN WOUNDED

John Jacob Astor had established the American Fur Company and Mackinac had become a center for collecting furs. The only physician within 300 miles was William Beaumont. Three thousand Indians and French-Canadian voyageurs brought furs to Mackinac in the summer, living in tents along the beach. On June 6, 1822, a shot gun was accidentally discharged in a store of the American Fur Company. Alexis St. Martin, standing less than three feet away, received the blast in his abdomen and chest, and an opening was made that would have admitted a fist. Beaumont took the young voyageur, helpless and destitute, into his home in the fort, where he nursed and sustained him for nearly two years. The record of St. Martin's case covers many pages of a large ledger, in which Beaumont made daily notations. On December 13, for example, he wrote: "To facilitate the closing of the puncture of the stomach, and remove the impediments to the granulations, which the constant pressure of compresses necessary to retain the food in the stomach from day to day cause, I made fast a piece of lint to a ligature, just large enough to pass through the orifice into the stomach, and then with the end of the probe pushed it on the inside, and suspended by the ligature, drew it up against the inside of the orifice, so as to stop the food from flowing out upon the inner side, and by this means suffering the granulations from the edges of the wound to contract nearer each other around the small ligature." When the wound

1. Myer, Jesse S.: Life and Letters of Dr. William Beaumont, St. Louis, C. V. Mosby Company, 1912; Dr. William Beaumont, Bull. Soc. M. Hist. Chicago 1: 150 (March) 1913.

healed there was still an opening into St. Martin's stomach from which gastric juice could be collected and the process of digestion observed. Three years after the accident the idea occurred to Beaumont to undertake a series of experiments. These were scarcely started when Beaumont was ordered to Fort Niagara; however, he obtained leave of absence to take St. Martin on a visit to scientists in the East. On this journey St. Martin skipped out to Canada and Beaumont could get no trace of him. Four years after St. Martin's disappearance the American Fur Company found him and brought him and his family to Beaumont, who then was stationed at Prairie du Chien. St. Martin was in good health. The aperture into his stomach was still open and the experiments were continued. In 1831 a leave of absence was granted to take St. Martin abroad to other scientists, but the Black Hawk Indian War started and Beaumont had to remain with the troops. When the war ended he took St. Martin to Washington, where he began a third series of experiments and reviewed the literature on digestion. With bottles of gastric juice Beaumont visited Prof. Benjamin Silliman of Yale University and Prof. Robley Dunglison of the University of Virginia. Silliman suggested sending a specimen to Bertzelius in Sweden as the man to make the chemical analysis. A bottle of gastric juice was given to the Swedish consul in 1833, with a letter of introduction from Silliman. Beaumont was eager to learn from any source about that "great solvent in the gastric juice." The most disappointing of all his replies was from Bertzelius.

SCIENTIFIC SOCIETIES INTERESTED

With the fourth series of experiments completed, St. Martin again went to Canada with the understanding that he would return and go with Beaumont to St. Louis, to which city he had been ordered. Scientific societies now desired to study St. Martin's case. Among those interested were the American Physiological Society, the British Medical Association and Claude Bernard in Paris. Sixty-five letters passed between St. Martin and those endeavoring to bring him back. Beaumont finally sent his son to Canada, but St. Martin refused to return. St. Martin lived until 83 years of age. Although William Osler tried to obtain permission for a necropsy, offering the family a fair price for the stomach that it might be placed in the Army Medical Museum in Washington, the family resisted all requests. Beaumont's four series of experiments on St. Martin numbered 238 in all, from which work he made fifty-one deductions. Many of his deductions are accepted today.

Beaumont's second resignation from the Army was accepted by the President effective Dec. 31, 1839. He remained in St. Louis in the practice of medicine until his death, April 25, 1853. To his grave in Bellefontaine Cemetery the St. Louis Medical Society makes an annual Pilgrimage on Beaumont's birthday.

A HARVARD CLASS AFTER TWENTY YEARS

The members of a class who were seniors at Harvard Medical School twenty-two years ago were asked to state what type of medical practice they had been most attracted to when they entered medical school and what they planned to do now. The record of these replies was recently found by Dr. William H. Barrow, who reviews them in the *Harvard Medical Alumni Bulletin* of October 1938. Sixty-two of the class of seventy-five are included in this study. The country went to war when most of the members of the class were serving their internships, and yet about 18 per cent of them have achieved the goals they set up for themselves on entering school. Another 3 per cent, although having different preferences in their first and fourth years, are now engaged in a specialty originally chosen. Another 21 per cent changed their preferences during their medical course but are now in the kind of practice chosen in the fourth year. Thus a total of 42 per cent of the sixty-two members of the class of 1916 have kept to the courses originally charted, in spite of the World War and the vicissitudes of practice. On the other hand, 27 per cent who throughout the school period pointed toward a chosen specialty are now in a different type of practice. The largest group, 31 per cent, comprises those whose first year choice, fourth year choice and present practice are all different.

While 27 per cent aspired to be surgeons in their senior year, only 5 per cent are now engaged exclusively in surgery. Eighteen per cent were attracted by internal medicine before graduation, but only 10 per cent now limit their practice to internal medicine alone. Gynecology and obstetrics fell from 11 to 6 per cent. Only 15 per cent of the class on graduation chose general practice, but those ranks have increased now to 30 per cent. The percentages of men engaged in other specialties than those mentioned are 8 per cent in orthopedics, 5 per cent each in public health, otolaryngology and neuropsychiatry, and 3 per cent each in ophthalmology, urology and medical administration. Physiology and pathology, radiology, physical therapy, anesthesia and the United States Army Medical Corps each claim one man from the class. The type of internship chosen by this class followed closely the intentions of the graduates at that time. About 37 per cent took straight surgical, 31 per cent straight medical and 16 per cent rotating internships.

An interesting fact brought out by this study was that only three of the sixty-two men have

died, a mortality rate far below the expected mortality. Furthermore, the professional "mortality" is 0, as all the living members are still engaged in the practice of medicine or in allied science. Thus medicine seems to have an appeal that holds "till death do us part" or, as Dr. Barrow suggests, perhaps the training has so fashioned us that there is no avenue of escape.

THE CONSISTENCY OF UNIVERSITY EXAMINATIONS

The reliability of examinations as a guide to the ability of the candidate and his fitness for further study is a controversial subject. An investigation was made by Dr. W. G. Millar[1] into the correlation existing in grades recorded in certain medical subjects at the University of Edinburgh. The third year teaching and examining at this university are done differently than in most medical schools. In the school year 1928-1929 an important change was introduced and since then the teaching in pathology, bacteriology, pharmacology, therapeutics, medicine and surgery has been coordinated so that the student is taught all aspects of a particular disease at the same time. If the subject being taught in medicine is valvular heart disease, for example, the subject taught in pathology will be endocarditis; in bacteriology, streptococci and the bacteriology of acute rheumatism, and in pharmacology and therapeutics, the actions and uses of the digitalis group of drugs.

With this coordinated teaching, the examinations are also coordinated, being held in spring and summer. In each case the departments concerned are grouped together and share questions. A question may be asked on the pathology of pyelonephritis, the surgical treatment of renal calculus and the bacteriology of urinary infections, while medicine, and pharmacology and therapeutics might share a question on heart disease. Each part of the question is written in a separate book and marked by the department concerned. Before each examination the heads of the six departments and the lecturer meet to map out the questions, and they meet again after each examination to consider the results. The grades made by each candidate in each subject are set out on a schedule and the candidate's claim to a certificate, after having done the work of the class which admits him to the professional examination, is considered jointly by the six examiners. The borderline cases especially are fully considered. The general impression of all who have had to do with the joint examination is that a candidate's "form" from one subject to another is remarkably constant.

1. Millar, W. Gilbert: Consistency of University Examinations, Brit. M. J. 2: 1209 (Dec. 12) 1936.

To confirm the impression of uniformity of performance, correlation coefficients were calculated between each of the six subjects for each year of a six year period. No repeaters were included in the study, and only the marks of those who attended the whole of each examination were taken.

THE AVERAGE MARK MADE

The second part of the analysis was an attempt to assess the prognostic value of the combined examination and to compare it with that of the preceding and succeeding professional examinations. The figures correlated consist in the average mark made in the respective examination as a whole. In the first professional examination were averaged the written and oral or practical in botany, physics, chemistry and zoology; and in the second likewise in physiology and anatomy; in the combined examination, the average of written papers in pathology, bacteriology, pharmacology, therapeutics, medicine and surgery; in the third professional examination, written and oral or practical in pathology and bacteriology and in pharmacology and therapeutics; in the final written and oral, forensic medicine and public health, midwifery and gynecology, medicine and surgery, clinical medicine and clinical surgery.

A tabulation shows the values of the correlation coefficient between the six subjects of the combined third year examination for the six years. The high values of the correlations coefficient obtained indicate that the performance of the candidate, even though judged in six different subjects and independently by three or four different examiners in each subject, remains very constant. Correlations were also calculated between the final and other professional examinations and the combined examination for a large group of students. These also showed a very high degree of correspondence. The results of the analysis of the data on the six subjects for the six years indicate that the examinations considered form a reliable guide to the students' academic capabilities.

TO THOSE UNDERTAKING THE PRECLINICAL SCIENCES

By Dr. P. M. F. Bishop. Slightly abridged from Guy's Hospital Gazette, Oct. 22, 1938.

The first three years in the life of the medical student are supposed to be the dullest. This is because the subjects studied in the preclinical period are considered by many to be purely academic and to have little bearing on the practical training of surgery, medicine or general practice.

Banish this idea completely from your mind when you enter the medical school. It is true

that you will have to work to a syllabus and that the knowledge you acquire will be determined to a large extent by the requirements of those examinations which must be successfully negotiated before you can enter the wards, where at last you will be dealing with living and dying patients. But there is a reason for everything you will learn in your preclinical studies, and that reason is based fundamentally on the experiences of clinical medicine. The first action of many students when they pass the examinations in anatomy and physiology is to set fire to their notes and to try to get a decent secondhand price for their textbooks. Then they feel they can start afresh on a new life, the life of the wards. But though the medical school is separated from the medical and surgical wards by a spacious park, they are much more intimately united as far as their activities are concerned.

For example, the three subjects organic chemistry, chemical physiology and clinical chemistry, you will find, are so closely linked together that it has been found desirable for the chemistry department and the chemical physiology laboratory to work largely in conjunction with each other, while the methods taught in the course of chemical physiology are those which are used subsequently in the clinical chemistry which is practiced in the wards.

The preclinical sciences are designed as a careful preparation for the subsequent clinical work, and if this is fully realized a new interest will be awakened in biology, physics, chemistry, anatomy, physiology and pharmacology.

RELATIVE FREEDOM

Most of you will have come to Guy's straight from school, and when you arrive you will be impressed with the relative freedom with which you are endowed. A record of attendances at lectures and practical classes is kept, mainly for the purpose of qualifying you for the examinations. You must realize, however, that these classes are designed to assist you in your work and not to compel you to work. Your life is in your own hands now. If you wish to take an intelligent interest in the manifold activities of the medical school and of the life of the hospital, you will be amply repaid. If you abuse the freedom which is given you by escaping from these activities, no one will miss you and no one will care very much. Medicine is a hard training for those who have no inherent interest in it, and the time to develop and cultivate that interest is as soon as you enter the medical school.

Do not become onesided. Remember that as a doctor you will come in contact with all kinds and classes of men and women, and you will be expected to take an intelligent part in conversation and to express a reasonable opinion on subjects not directly concerned with medicine. There is no one more boring and depressing than a doctor who has no outside interests, unless it is a group of doctors who are incapable of talking anything but "shop" to one another.

Finally, pay particular attention to taking regular exercise. This not only brings you in contact with your fellow students but is essential from the point of view of your health. The borough is not the most salubrious place to live or work in, and hospital life is strenuous. Try as far as possible to develop an immunity to disease while you are still in the medical school, by keeping fit and in training.

THE FINANCING OF UNIVERSITY EDUCATION

Returns from universities and colleges in Great Britain which receive treasury grants, reported by the University Grants Committee, show that there were nearly 50,000 full time and 13,000 part time students engaged in courses of instruction in the academic year 1936-1937. Some decrease in the number of entries has occurred since 1933-1934, while in the nine previous years there was an increase in the total number of students each year. The *Lancet*[1] points out that the present decrease in the number of full time students falls in the arts and pure science groups. The medical group, with 13,263 full time students, represented more than a quarter of the total and was the second largest group of all. Of the full time advanced students, that is, those taking a higher degree or engaged in research, only 6 per cent were in medicine, but of part time advanced students more than 25 per cent of the total were taking medical subjects. Of all subjects, chemistry attracts the largest number of male advanced students, followed by surgery, history, physics, medicine, law and economics. With women, the order of popularity for the higher degrees is research, history, education, English, psychology, botany and French.

The total income of the institutions concerned is nearly six and a half million pounds, 36 per cent of which was supplied by parliamentary grants, 8.5 per cent by grants from local authorities, 31 per cent by fees for tuition, examination and the like, 14.8 per cent by endowments and 2.4 per cent by donations and subscriptions. Of the fifty-nine institutions to which this report relates, ten balanced their accounts and thirty showed a surplus of income over expenditure, and of those which showed a deficit only nine exceeded £1,000.

1. The Financing of University Education, Lancet **1**: 1405 (June 18) 1938.

Medical College News

Medical schools, hospitals and individuals will confer a favor by sending to these headquarters original contributions, reviews and news items to be considered for publication in the Student Section.

Examination for the Army Medical Corps

The War Department has announced an examination, March 20-24, for the purpose of qualifying candidates for appointment as first lieutenants in the medical corps, regular army, to fill vacancies occurring during the next calendar year. The examination is open to all male graduates of acceptable medical schools who have completed one year's internship in an approved hospital or who will complete such an internship June 30 and who will not be over 32 years of age at the time it will be possible to tender a commission. Those doctors who do not complete their internships until June 30 will not be eligible for appointment until July 1. The examination will be conducted by boards of medical officers convened throughout the United States and will consist of a physical examination, a written examination in professional subjects and a determination of the candidates' adaptability for military service. Full information and application blanks will be furnished on request addressed to the Adjutant General, War Department, Washington, D. C. Applications will not be considered after March 4.

Examinations for Internships in Naval Hospitals

An examination is held in November each year for senior medical students of class A medical schools who desire to obtain an internship in one of the United States naval hospitals. Senior medical students who qualify for appointment to an internship will be appointed acting assistant surgeons with rank of Lieutenant (junior grade) for temporary service during the intern year. On satisfactory completion of the internship, the intern will be allowed to appear for competitive examination for appointment as assistant surgeon with the rank of Lieutenant (junior grade) in the medical corps of the navy. Should the intern desire to return to the practice of medicine in civil life, his appointment as an acting assistant surgeon will be terminated and he will be honorably discharged from the naval service. To be commissioned in the medical corps of the navy the candidate must be a citizen of the United States between 21 and 32 years of age and he must pass both professional and physical examinations. On accepting an appointment as acting assistant surgeon for internship, the officer will receive a compensation of $2,699 a year if he has no dependents, and $3,158 a year if he has dependents. Successful candidates for appointment as interns will be appointed in July and will be assigned for internship to a naval hospital either in Boston, New York, Philadelphia, Washington, D. C., Norfolk, Va., San Diego, Calif., or Mare Island, Calif. The period of internship is one year, is rotating and consists of about five months medical, five months surgical and two months laboratory duties. For additional information address the Bureau of Medicine and Surgery, Navy Department, Washington, D. C.

Internships in the Marine Hospitals

The U. S. Public Health Service desires to receive applications for appointments as second year interns in the marine hospitals operated by the service. Applicants must not be over 30 years old, must have graduated from accredited medical schools and must have completed one year's internship at approved hospitals by next June. Second year internships at marine hospitals are similar to residencies in general hospitals. Appointees will receive a gross pay of $1,800 a year, from which a deduction of $690 a year will be made if quarters, subsistence and laundry are furnished. Those assigned to the federal penal and correctional institutions will receive $1,620 a year, from which $240 will be deducted if quarters, subsistence and laundry are furnished. It is especially desired to receive applications from candidates who are interested in the service as a career, and appointments will be made with the understanding that opportunity will be afforded to take the next examination for appointment as assistant surgeon. The rank of assistant surgeon corresponds in pay and allowances to that of first lieutenant in the U. S. Army. Those who wish to make application should communicate at once with the Surgeon General, U. S. Public Health Service, Washington, D. C., stating definitely that they are interested in a second year internship and giving the earliest date of their availability.

Dr. James B. Herrick Honored

At the 194th convocation of the University of Chicago the honorary doctorate of science was conferred on Dr. James B. Herrick, who for thirty-seven years was a member of the faculty of Rush Medical College. Dr. Herrick is internationally known for his work on coronary thrombosis. Born in Oak Park, Ill., in 1861, Dr. Herrick was educated at the University of Michigan and Rush Medical College, receiving his degree from the latter institution in 1888. He was a founder and the first president of the Chicago Society of Internal Medicine. Dr. Herrick has been president of the Institute of Medicine of Chicago, of the American Heart Association, of the Association of American Physicians and of the Congress of American Physicians and Surgeons. In 1930 he received the Kober Medal of the Association of American Physicians for research in scientific medicine. The University of Michigan conferred the honorary degree of doctor of laws on him in 1932.

Annual Dinner and Students Clinic Day at Wayne University

The annual dinner of the faculty, students and alumni of Wayne University College of Medicine, Detroit, December 15, at the Detroit-Leland Hotel, was attended by more than 400 and was the climax of a day of clinics and discussions at the college, in which the students organized and carried through four sections of papers and discussions. Members of the faculty had no part in the preparation of papers and clinics but selected from all six that were considered the most excellent, and from these they decided on two for first and second prizes. The first prize was presented by Dr. Raymond B. Allen, dean of the college, to Dr. Kenneth Campbell, Toronto, for his paper on "Alterations in Gastrointestinal Motility, Following Increased Pressure in the Upper Urinary Tract." The prize was the Dr. Max Ballin memorial award medal and $20, contributed by Drs. Robert C. Moehlig and Norman M. Allen, to which the college faculty added another $10. The second prize was won by Charles Merckel for his paper on "Comparison of the Effects of Estrone and Testosterone," which was a faculty cash award of $15.

The prize for the best clinic conducted by the students during the day was awarded, by vote of the

students, to the clinic on electrocardiography. The prize was the Dr. Walter J. Wilson I Memorial Medal and $20, contributed by Dr. Walter J. Wilson Jr., to which the college faculty added $10. The chairman of this clinic was Benjamin Jeffries, who was assisted in the demonstration by William F. Goins, Thaddeus S. Huminski, Melvin Silverman and Marvin Schwartz.

Dr. Arthur E. Hertzler, Halstead, Kansas, gave the after dinner address on "How to Get an Education in Spite of the Faculty." Dr. Hertzler is author of the recent best seller, "The Horse and Buggy Doctor."

Scholarship Award at Vanderbilt

An annual scholarship award of $500 has been established by Dr. Ben Witt Key, New York, to some senior of the Vanderbilt School of Medicine, Nashville, Tenn. The award will be effective on the next graduation in June. The winner of the cash award will be that member of the graduating class who is adjudged the best scholar. A committee of three members of the faculty of the School of Medicine will be appointed yearly by the dean, who may also be a member of the committee. The committee is to be governed in its rating of the candidates on the basis of three qualifications: high scholastic rating for the entire period of enrolment in the school (fifth highest or better in the class), outstanding ability in understanding and employing scientific methods of work; the superior traits of character and personality.

Dr. Key received his degree of B.A. from Vanderbilt University in 1905 and graduated from the University of Pennsylvania School of Medicine, Philadelphia, in 1909.

National Board Questions in Bacteriology

Following are the questions used by the National Board of Medical Examiners in bacteriology and immunology in part one of the examination held Sept. 12-14, 1938:

Answer any five questions. 1. Describe the characteristics of Bacterium tularense. How is this infection acquired by man? 2. What are the chief pathogenic organisms of the Rickettsia group? Name two diseases caused by them. 3. Outline the method of testing the bactericidal action of a phenoloid disinfectant. 4. What are the three main types of the tubercle bacillus? How is each type identified? 5. Describe echinococcus disease in man. State how the infection is transmitted. How is the diagnosis made? 6. Define the unit of diphtheria antitoxin. How is the potency of a sample of diphtheria antitoxin determined? 7. Describe a bacterial complement fixation test.

Fellowship for Women Physicians

The Women's Medical Association of the City of New York announces that the Mary Putnam Jacobi Fellowship of $1,000 for one year is available for graduate work in the medical sciences. It is open to any woman graduate of an approved medical school, who must be endorsed by the head of the department in which her previous work has been done. The recipient must give full time to the study, which should preferably be made abroad or, if not resident in the United States, she should study in the United States. Applications for 1939-1940 should be filed with the chairman of the committee on or before April 1 and must be accompanied by statements as to health, educational qualifications, proposed problem for investigation and a photograph of the applicant. A report for publication will be required at the completion of the fellowship. The chairman of the committee is Dr. Annie S. Daniel, New York Infirmary, 321 East Fifteenth Street, New York.

Dr. Julius Bauer Comes to Louisiana

The dean of the Louisiana State University Medical Center, New Orleans, Dr. Joseph Rigney D'Aunoy, announced Dec. 8, 1938, the appointment of Dr. Julius Bauer of Vienna as clinical professor of medicine effective in January of this year. Dr. Bauer, a native of Bohemia, graduated in 1910 from the University of Vienna and later was appointed docent and professor of internal medicine. In the meantime he had served as demonstrator and assistant in the Neurologic Institute and in the medical clinics of Professors Strümpell and Neusser. He was also assistant in the university clinic at Innsbruck and in the general policlinic of Vienna. In 1928 he was put in charge of the medical department, formerly directed by Professor Kaufmann. Dr. Bauer has more than 200 publications to his credit, and his five books have been translated into other languages. In 1928 Dr. Bauer delivered the convocation address at the meeting of the American College of Physicians in New Orleans. In 1932 he delivered the Harvey lecture in New York and he has lectured in many other cities. He is an honorary member of the St. Louis Medical Society.

Research on Experimental Neurotic Behavior

A prize of $1,000, awarded annually by the American Association for the Advancement of Science for a scientific paper presented at the meeting, was given at Richmond, Va., to Norman R. F. Maier, Ph.D., professor of psychology at the University of Michigan, Ann Arbor, for his paper entitled "Experimentally Produced Neurotic Behavior in the Rat."

Loyola Students Participate in Symposium

The three honorary medical fraternities of Loyola University School of Medicine, Chicago, sponsored a symposium on peptic ulcer given at Mercy Hospital on the evening of Dec. 13, 1938. Introductory discussions on the pathology, physiology and anatomy of peptic ulcer were given by three senior medical students, Alfred H. Benson, representing Lambda Rho, who outlined the pathology; Louis J. Belniak, representing the Volini Society, who discussed the physiology, and Hobart H. Todd of the Moorhead Surgical Seminar, who reviewed the anatomy of peptic ulcer. Then Dr. Karl A. Meyer and Dr. Maximilian J. Hubeny, both of the Cook County Hospital, discussed the surgical and roentgenologic phases of the subject, and Dr. Fred M. Drennan, clinical professor of medicine of Loyola University, discussed the internist's point of view. Invitations were extended to the faculty, student body and members of the staff of the hospitals affiliated with Loyola. This symposium is the first of a series of three planned for this school year.

Scholarships at Michigan

On the recommendation of the Committee on Scholarships of the Executive Faculty of the University of Michigan School of Medicine, Ann Arbor, the annual scholarship awards were recently made. Nicholas Lentini received the Misses Armstrong Scholarship; Joseph Henry Kerzman, Miss Elizabeth J. Kitchen and John W. Warren Jr. were awarded the University Scholarships in Professional Schools; the Agnes C. Weaver Scholarships were granted to Malcolm Block and Warren Campbell Hastings, and Samuel Stearns received the Sally Curry Scholarship. The Walter R. Parker Fellowship in ophthalmology for the current year has been awarded to Dr. William J. Stellwagen, instructor in ophthalmology.

Staff Members Appointed to Faculty

With the affiliation between New York University College of Medicine and the Queens General Hospital during the past year, more than twenty members of the hospital staff have been appointed to the faculty of the college of medicine. Among the appointments were:

Dr. Carl Boettiger, clinical professor of medicine.
Dr. Frank R. Mazzola, assistant clinical professor of medicine.
Dr. Harry P. Mencken, clinical professor of obstetrics and gynecology.
Dr. Walter C. A. Steffen, clinical professor of pediatrics.
Dr. Henry A. Reisman, assistant clinical professor of pediatrics.
Dr. Frank N. Dealy, clinical professor of surgery.
Dr. Frederic G. Meynen, assistant clinical professor of surgery.

In addition, Dr. Thomas K. Davis has been appointed clinical professor of neurology and the following have been promoted: Drs. Frank C. Combes, to assistant professor of dermatology and syphilology; Timothy J. Riordan, assistant clinical professor of dermatology and syphilology, and Evan W. Thomas, assistant professor of dermatology and syphilology.

Entertain Women Interns and Senior Students

The senior medical students and the women interns of Chicago were entertained by the Medical Women's Club, the Council of Medical Women, and Branch two of the National Medical Women's Association at a dinner December 14, following which a program of entertainment was presented. Dr. Carroll C. L. Birch, assistant professor of medicine, University of Illinois College of Medicine, was chairman of the committees in charge.

St. Louis University School of Medicine

Dr. Henry Pinkerton has been appointed director of the department of pathology at St. Louis University School of Medicine, St. Louis, to enter on his duties at the beginning of the new year. Dr. Pinkerton has been assistant professor of pathology at Harvard University School of Medicine, Boston. William Bauer has been appointed professor of dental pathology at St. Louis University; formerly he was director of the dental clinic at the University of Innsbruck, Germany.

California Personal

Floyd DeEds, Ph.D., in charge of the pharmacology research unit, food research division, U. S. Department of Agriculture and research associate, department of pharmacology, Stanford University School of Medicine, San Francisco, has been promoted to principal pharmacologist.

The Judd Lecture at Minnesota

Dr. Dallas B. Phemister of Chicago, professor of surgery at the University of Chicago, will give the sixth E. Starr Judd Lecture at the University of Minnesota, Minneapolis, in the Medical Science Amphitheater on Wednesday, February 1, at 8:15 p. m. The subject of Dr. Phemister's lecture is "Pathogenesis of Gallstones." The late Dr. Edward Starr Judd, an alumnus of the Medical School of the University of Minnesota, established this annual lectureship in surgery a few years before his death.

Scholarship at Woman's Medical College

The Woman's Medical College of Pennsylvania, Philadelphia, announces that a tuition scholarship of the value of $400 will become available to a student entering the first year of the medical course in September and will be awarded on the basis of a competitive oral and written examination, to be held at the college April 1. The competition will be open only to students of superior premedical record who furnish convincing proof of need of this assistance. Candidates will be required to fill out a special form of application for admission to the examination. For further details apply to Assistant to the Dean, Woman's Medical College of Pennsylvania, East Falls, Philadelphia.

Scholarship Awards at Temple

Four students in the Temple University School of Medicine, Philadelphia, recently received the scholarship merit award of the General Alumni Association. These students were John B. Roxby Jr., Swarthmore, Pa. (freshman), Maurice L. Brown, Philadelphia (sophomore), Norman Learner, Philadelphia (junior), and Henry T. Wycis, Leechburg, Pa. (senior).

Harvard Awards Melvin Scholarships

The award of James C. Melvin scholarships to the following students at the Harvard Medical School, Boston, was recently announced: Bertrand E. Bennison, Newton, Mass.; Kenneth T. Bird, Watertown, Mass.; Tague C. Chisholm, Boston; Philip G. Creese, Danvers, Mass.; David Dove, South Sudbury, Mass.; Arthur R. Hartwig, Lawrence, Mass.; Lawrence Kilham, Boston; Julian Nieckoski, Deerfield, Mass.; Robert J. Tracy, Concord, Mass.; Paul F. Ware, Clinton, Mass., and Earle H. Webster, Bridgewater, Mass.

Pennsylvania State Board Questions

The following list of questions in gynecology and obstetrics was submitted by the Pennsylvania State Board of Medical Education and Licensure at the examination in Harrisburg, January 4:

1. Discuss the etiology, symptomatology and diagnosis for the various forms of vaginitis. Outline treatment of one of these conditions.
2. Discuss the differential diagnosis between early and incomplete abortion and tubal pregnancy.
3. Give the arguments for and against the treatment of incomplete (partial or marginal) placenta praevia by cesarean section.
4. Describe the various methods of constructing an artificial vagina. Tell something of the advantages and disadvantages of each, and describe one of these procedures in detail.
5. Given a woman, age 66 years, who had a hysterectomy at the age of 30 and who in the past six months has developed a painless but marked distention of the abdomen, describe in detail the differential diagnosis and suggested procedure in treatment.
6. Give the etiology, symptomatology and pathology of salpingitis. Give your method of treatment.
7. Discuss the complications of labor which may develop by reason of a funnel (android) pelvis.
8. Describe the various malpositions of the uterus. Tell the causes of each and describe the treatment for these various malpositions.
9. In the case of a childless marriage, how would you investigate the male and the female for sterility? What treatment would you institute to try to induce the woman to become pregnant?
10. How would you diagnose threatening endo-uterine asphyxia of the fetus during labor? How would you manage such a case?

Instruction on Tuberculosis at Tulane

Dr. Julius L. Wilson, associate professor of medicine at Tulane University School of Medicine, New Orleans, is now full time instructor at the school assigned in the field of tuberculosis and other diseases of the chest. State and parish tuberculosis organizations were instrumental in promoting this form of instruction for medical students and Dr. Wilson's services will be available to them for community campaign work. He graduated from Johns Hopkins University School of Medicine, Baltimore, in 1923 and comes to Tulane from the Yale University School of Medicine, New Haven, Conn., where he was assistant clinical professor and in charge of the tuberculosis division of the William Wirt Winchester Hospital.